

THE INFLUENCE OF PRELIMINARY CULTIVATION ON THE RESISTANCE AND STRUCTURES
OF CELLS DURING FREEZING AND LYOPHILIZATION

AUTHOR: EMTSEVA T V; LAVPOVA L N; KONSTANTINOVA N D

AUTHOR ADDRESS: ALL-UNION RES. INST. GENET. SEL. IND. MICROORG., MOSCOW,
RUSSIA.

JOURNAL: MIKROBIOLOGIYA 60 (5). 1991. 879-889.

FULL JOURNAL NAME: Mikrobiologiya

CODEN: MIKBA

RECORD TYPE: Abstract

LANGUAGE: RUSSIAN

ABSTRACT: The influence of preceding cultivation on the viability of strains *Serratia marcescens* VKPM V-143 and *Erwinia aroideae* VKPM V-1356 during lyophilization and low-temperature storage (-70.degree.C) was studied. Cultivation on nutritive medium with added 0.2% oleic acid and 0.5% .sbd. 1.0% Tween-80 was shown to **increase viability** by 20 .sbd. 30% and to ensure maintenance of stability during 1.5 year storage. During low-temperature storage high viability (33 .sbd. 98%) and stability were provided for by adding 0.03% oleic acid and 1.0% Tween-80. Electron-microscopic investigations showed that addition of 0.2% oleic acid to the medium of preceding cultivation not only favoured **viability increase** of the cultures during lyophilization, but also influenced the structure of the cells. This provides ground to suggest that better survival during lyophilization after the suggested conditions of pre-cultivation was associated not only with change of the ratio of saturated **fatty acids** to unsaturated ones, but also with alterations of cellular structures.

BOVINE BILE RESISTANCE **INCREASES** LEUCONOSTOC-OENOS 44.40
VIABILITY UPON LYOPHILIZATION

AUTHOR: KOLE M; ALTOSAAR I

AUTHOR ADDRESS: BIOTECHNOL. DEP., ALBERTA RES. COUNCIL, EDMONTON, ALBERTA,
CANADA T6G 2G2.

JOURNAL: APPL ENVIRON MICROBIOL 47 (5). 1984. 1150-1153.

FULL JOURNAL NAME: Applied and Environmental Microbiology

CODEN: AEMID

RECORD TYPE: Abstract

LANGUAGE: ENGLISH

ABSTRACT: A screening method based on the selection of strains of L. oenos 44.40 resistant to bovine bile was developed to obtain strains of the organism more resistant to lyophilization damage. These strains could be used as starter cultures in the malolactic fermentation of wine. The strain resistant to bovine bile was 20% more viable after lyophilization than strains not resistant to bovine bile. This was confirmed in laboratory-scale production (100 ml) and pilot-scale production (100 l). Lyophilized cells of strains sensitive and resistant to bovine bile were inoculated into wine and the malate metabolism by the organism was monitored in the wine. Resistance to bovine bile did not change the malate metabolism characteristic of the organism. A comparison was made of the **fatty acid** compositions of the 2 strains. There was a difference in the **fatty acid** distribution pattern for these 2 strains. The bovine bile-resistant strain contained more dodecanoic, hexadecanoic and octadecanoic acid and less tetradecanoic and hexadecanoic acid than did the bovine bile-sensitive strain. Both strains contained high levels of C-19 cyclopropane **fatty acid**.

Fatty acid composition of Escherichia coli cells and their viability in air]

Zhirkokislotoyni sostav kletok Escherichia coli i ikh vyzhivaemost' v vozdukh.

Bogoslovskaya OA; Andreev LV; Burlakova EB; Glushchenko NN; Koniukhov VF
Zh Mikrobiol Epidemiol Immunobiol (USSR) Dec 1984, (12) p65-8, ISSN 0372-9311 Journal Code: Y90

Languages: RUSSIAN Summary Languages: ENGLISH

Document type: JOURNAL ARTICLE English Abstract

JOURNAL ANNOUNCEMENT: 8506

Subfile: INDEX MEDICUS

Experiments on E. coli used as a model have revealed that **fatty-acid** composition is one of the characteristics which determine the viability of **bacteria** in the air. The **viability** of microbial cells in the air has been shown to **increase** with the increase of the pool of cyclopropane acids and the palmitic acid/palmitoleic acid ratio in the cells, irrespective of their genotype and the phase of their growth.

Descriptors: Air Microbiology; *Escherichia coli--Analysis--AN; ***Fatty Acids**--Analysis--AN; Aerosols; Escherichia coli
--Physiology--PH; Regression Analysis

CAS Registry No.: 0 (Aerosols); 0 (Fatty Acids)

52141
600 100 100 100

IALOG(R)File 55:Biosis Previews(R)
(c) 1999 BIOSIS. All rts. reserv.

03928477 BIOSIS NO.: 199396079978
Dependence of fatty acid composition of *Listeria* spp. on growth
temperature.

AUTHOR: Puettmann M; Ade N; Hof H(a)
AUTHOR ADDRESS: (a)Inst. Med. Microbiol. and Hygiene, Fac. Clin. Med.
Mannheim, Univ. Heidelberg, 6800-Mannheim, Germany

JOURNAL: Research in Microbiology 144 (4):p279-283 1993
ISSN: 0923-2508
DOCUMENT TYPE: Article
RECORD TYPE: Abstract
LANGUAGE: English
SUMMARY LANGUAGE: English; French

ABSTRACT: In *Listeria* spp., various fatty acids are produced; by far the
most common members are C-15 and C-17 chain length fatty acids. This
pattern is rather similar in all species. At low temperatures, most of
the *Listeria* are able to change the relative composition whereby more of
the C-15 fatty acids are produced, which could **increase** the
fluidity of the **bacterial** cell **membrane** under these

double

EVIDENCE THAT STREPTOCOCCUS-MUTANS CONSTRUCTS ITS MEMBRANE WITH EXCESS
FLUIDITY FOR SURVIVAL AT SUBOPTIMAL TEMPERATURES

AUTHOR: TSIEN H; PANOS C; SHOCKMAN G D; HIGGINS M L
AUTHOR ADDRESS: DEP. MICROBIOL. IMMUNOL., TEMPLE UNIV. SCH. MED.,
PHILADELPHIA, PA. 19140, USA.

JOURNAL: J GEN MICROBIOL 121 (1). 1980 (RECD. 1981). 105-112.
FULL JOURNAL NAME: Journal of General Microbiology
CODEN: JGMIA
RECORD TYPE: Abstract
LANGUAGE: ENGLISH

QR154

ABSTRACT: When cells from cultures of *S. mutans* strain FA-1 grown at 37.degree. C were exposed to incubation temperatures of 26.degree. C or less for 5 min or more, an extensive aggregation of particles was observed on the convex fracture faces of their freeze-cleaved membranes. Aggregation of particles was accompanied by a parallel increase in the activation energy for growth. By shifting the growth temperature from 27-24.degree. C for 1 doubling of culture mass, the transition temperature for membrane particle aggregation could be lowered from about 26-0.degree. C. Although membrane lipids became enriched with unsaturated fatty acids during this period of growth at 24.degree. C, this enrichment was not accompanied by an increased growth rate of the culture. The period of growth at 24.degree. C did result in bacteria that could grow more rapidly at 10.degree. C than could bacteria directly transferred from cultures grown at 37.degree. C. Thus, the **increase** in **membrane fluidity** that occurs when **bacteria** are grown at 24.degree. C does not allow bacteria to grow faster at 24.degree. C but rather allows them to adapt more readily to further decreases in

\$%^Dialog HighlightOn=%%, HighlightOff=%%

Logging in to Dialog

Trying 9158046 Open

DIALOG INFORMATION SERVICES
PLEASE LOGON

ENTER PASSWORD
d810szlz

Welcome to DIALOG

Dialog level 99 07 29D

Last logoff 08sep99 10 34 21

Logon file495 17sep99 12 09 15

ANNOUNCEMENT **** ANNOUNCEMENT **** ANNOUNCEMENT
NEW

***Market Guide Company Financials (File 100)
***Frost & Sullivan Market Engineering (File 767)

RELOADED

***Gale Group F&S Index (File 18)
***RAPRA (File 323)
***Gale Group New Product Announcements (File 621)
***Aerospace/Defense Markets & Technology (File 80)
***ICC British Company Directory (File 561)

REMOVED

***Philosopher's Index (File 57)

>>> Enter BEGIN HOMEBASE for Dialog Announcements <<<

>>> of new databases, price changes, etc <<<

dialog

F226 Preliminary Records Through 6/14/99

File 495 The Columbus Dispatch 1988-1999/Aug 29

(c) 1999 Dispatch Printing Co

*File 495 The Columbus Dispatch is no longer updating

Set Items Description

? b 410

>>>DIALOG not recognized as set or accession number

? set hi %%% set hi %%%

17sep99 12 09 21 User231899 Session D254 1

\$0 *1 0 107 DialUnits File495

\$0 11 Estimated cost File495

FTSNET 0 016 Hrs

\$0 11 Estimated cost this search

\$0 11 Estimated total session cost 0 107 DialUnits

File 410 Chronologi(R) 1981-1999 Jul/Aug

(c) 1999 The Dialog Corporation plc

Set Items Description

HIGHLIGHT set on as %%% %%%
%% %HIGHLIGHT set on as %%% %%%

? b 55 5 434 144

17sep99 12 09 49 User231899 Session D254 2

\$0 00 0 057 DialUnits File410

\$0 00 Estimated cost File410

FTSNET 0 007 Hrs

\$0 00 Estimated cost this search

\$0 11 Estimated total session cost 0 164 DialUnits

SYSTEM OS - DIALOG OneSearch

File 55 Biosis Previews(R) 1993-1999/Aug W2

(c) 1999 BIOSIS

*File 55 File is reloaded Accession number changed

File 5 Biosis Previews(R) 1969-1999/Aug W2

(c) 1999 BIOSIS

File 434 SciSearch(R) Cited Ref Sci 1974-1989/Dec

(c) 1998 Inst for Sci Info

File 144 Pascal 1973-1999/Aug

(c) 1999 INIST/CNRS

Set Items Description

? s bacter?

S1 1871321 BACTER?

? s membrane#

S2 0 MEMBRANE#

? s membrane?

S3 1452758 MEMBRANE?

? s s1 (10n) s2

1871321 S1

0 S2

S4 0 S1 (10N) S2

? s s1 (10n) s3

1871321 S1

1452758 S3

S5 26356 S1 (10N) S3

? s increas? or enhanc?

2625697 INCREAS?

665472 ENHANC?

S6 3058102 INCREAS? OR ENHANC?

? s fluid?

S7 607785 FLUID?

? ds

Set Items Description

S1 1871321 BACTER?

S2 0 MEMBRANE#

S3 1452758 MEMBRANE?

S4 0 S1 (10N) S2

S5 26356 S1 (10N) S3

S6 3058102 INCREAS? OR ENHANC?

S7 607785 FLUID?

? s s6 (10n) s7

3058102 S6

607785 S7

S8 26248 S6 (10N) S7

? s s5 (10n) s8

26356 S5

26248 S8

S9 15 S5 (10N) S8

? rd s15

>>>Set 15 has not yet been created

? rd s9

completed examining records

S10 10 RD S9 (unique items)

? t s10/k1-10

10/k/1 (Item 1 from file 55)

DIALOG(R)File 55 (c) 1999 BIOSIS All rts reserv

ABSTRACT 6-phenyl-1,3,5-hexatriene There was a dose-dependent and reversible inhibition of %%%bacterial%%% adhesion with %%%increasing%%% %%%membrane%%% %%%fluidity%%% Time course experiments indicated that %%%increasing%%% %%%membrane%%% %%%fluidity%%% during the early stages of %%%bacterial%%% adhesion was essential for inhibition of attachment None of the fluidizers affected the viability of

10/k/2 (Item 2 from file 55)

DIALOG(R)File 55 (c) 1999 BIOSIS All rts reserv

ABSTRACT doxyl-stearic acid methyl ester (in which the nitroxide group is located deeper in the %%%bacterial%%% cell %%%membrane%%%) by means of electron spin resonance The %%%membrane%%% %%%fluidities%%% of plaunotol-treated cells were significantly %%%increased%%% in the measurements made using the two spin labels We also attempted to isolate plaunotol

10/k/3 (Item 3 from file 55)

DIALOG(R)File 55 (c) 1999 BIOSIS All rts reserv

ABSTRACT that at least two mechanisms are responsible for the development of postcesarean open wounds (1) %%%increased%%% amniotic %%%fluid%%% and wound colonization due to prolonged rupture of %%%membranes%%%, resulting in a wound infection containing one or more %%%bacterial%%% species derived from the cervicovaginal flora, and (2) increased exogenous bacterial contamination and flora consistent

10/k/4 (Item 4 from file 55)

DIALOG(R)File 55 (c) 1999 BIOSIS All rts reserv

ABSTRACT the relative composition whereby more of the C-15 fatty acids are produced which could %%%increase%%% the %%%fluidity%%% of the %%%bacterial%%% cell %%%membrane%%% under these conditions

10/K/5 (Item 1 from file 5)
DIALOG(R)File 5(c) 1999 BIOSIS All rts reserv

ABSTRACT twenty years. In a series of studies, high concentrations of silicon were detected in mucous membrane tissue in suppurative sinusitis. *Pseudomonas aeruginosa* is a species of bacteria frequently found in chronic sinusitis. An increase in the number of *Pseudomonas aeruginosa* in various culture fluids containing silicon ranging from 10 to 350 ppm, was observed up until 16 hours by

10/K/6 (Item 2 from file 5)
DIALOG(R)File 5(c) 1999 BIOSIS All rts reserv

DESCRIPTORS INCREASED BACTERIAL
MEMBRANE FLUIDITY

10/K/7 (Item 3 from file 5)
DIALOG(R)File 5(c) 1999 BIOSIS All rts reserv

ABSTRACT hemolysis of erythrocytes was also inhibited. Taurine decreased the fluorescence depolarization of diphenylhexatriene, indicating an increase in membrane fluidity. Evidently, taurine strengthens both phagocytic and bactericidal capacities of neutrophils by increasing the fluidity of neutrophil membrane and membrane stability and plays an important role in the mechanism of host defense.

10/K/8 (Item 4 from file 5)
DIALOG(R)File 5(c) 1999 BIOSIS All rts reserv

ABSTRACT bacteroid cytoplasmic membrane was also qualitatively demonstrable with the fluorescent probe. Ca^{2+} caused respiration-supported bacteroid membrane potentials to increase. This effect was accompanied by increases in membrane fluidity and nitrogenase activity in the absence of external reducing agents or added ATP.

10/K/9 (Item 5 from file 5)
DIALOG(R)File 5(c) 1999 BIOSIS All rts reserv

ABSTRACT C than could bacteria directly transferred from cultures grown at 37 degree C. Thus, the increase in membrane fluidity that occurs when bacteria are grown at 24 degree C does not allow bacteria to grow faster at 24

10/K/10 (Item 1 from file 144)
DIALOG(R)File 144(c) 1999 INIST/CNRS All rts reserv

that at least two mechanisms are responsible for the development of postcesarean open wounds: (1) increased amniotic fluid and wound colonization due to prolonged rupture of membranes resulting in a wound infection containing one or more bacterial species derived from the cervicovaginal flora, and (2) increased exogenous bacterial contamination and flora consistent

10/S/4 (Item 4 from file 55)
DIALOG(R)File 55 Biosis Previews(R)
(c) 1999 BIOSIS All rts reserv

08928477 BIOSIS NO. 199396079978
Dependence of fatty acid composition of *Listeria* spp. on growth temperature

AUTHOR Puettmann M, Ade N, Hof H(a)
AUTHOR ADDRESS (a)Inst Med Microbiol and Hygiene, Fac Clin Med Mannheim Univ Heidelberg, 6800-Mannheim, Germany

JOURNAL Research in Microbiology 144 (4) p279-283 1993
ISSN 0923-2508
DOCUMENT TYPE Article
RECORD TYPE Abstract
LANGUAGE English
SUMMARY LANGUAGE English, French

ABSTRACT In *Listeria* spp., various fatty acids are produced, by far the most common members are C-15 and C-17 chain length fatty acids. This pattern is rather similar in all species. At low temperatures, most of the *Listeria* are able to change the relative composition whereby more of the C-15 fatty acids are produced, which could increase the

fluidity of the bacterial cell membrane under these conditions

DESCRIPTORS
MAJOR CONCEPTS Biochemistry and Molecular Biophysics, Membranes (Cell Biology), Physiology
BIOSYSTEMATIC NAMES Gram-Positive Cocci--Eubacteria, Bacteria, Regular Nonsporing Gram-Positive Rods--Eubacteria, Bacteria
ORGANISMS regular nonsporing gram-positive rods (Regular Nonsporing Gram-Positive Rods), *Streptococcus salivarius* (Gram-Positive Cocci)
BIOSYSTEMATIC CLASSIFICATION (SUPER TAXA) bacteria, eubacteria, microorganisms
MISCELLANEOUS TERMS DENTAL CARIES, FRUCTOSE, GLUCOSE, MANNOSE, PHOSPHOTRANSFERASE SYSTEM
CONCEPT CODES
10066 Biochemical Studies-Lipids
10506 Biophysics-Molecular Properties and Macromolecules
10508 Biophysics-Membrane Phenomena
10614 External Effects-Temperature as a Primary Variable (1971-)
31000 Physiology and Biochemistry of Bacteria
BIOSYSTEMATIC CODES
07830 Regular Nonsporing Gram-Positive Rods (1992-)

10/9/6 (Item 2 from file 5)
DIALOG(R)File 5 Biosis Previews(R)
(c) 1999 BIOSIS All rts reserv

05930711 BIOSIS NO. 000035022074
METABOLIC RESPONSES OF NEISSERIA-GONORRHOEA TO HUMAN SERUM AND MYELOID CELLS ADAPTATION TO HOST DEFENSES

AUTHOR COHEN M S, BRITIGAN B E
AUTHOR ADDRESS DEP MED, UNIV NORTH CAROLINA AT CHAPEL HILL, HILL NC, USA

JOURNAL VTH INTERNATIONAL PATHOGENIC NEISSERIAE CONFERENCE NOORDWIJKERHOUT, NETHERLANDS, SEPTEMBER 15-18, 1986, ANTONIE LEEUWENHOEK J
MICROBIOL 53 (6) 1987 545-550
CODEN ANLEED
RECORD TYPE Citation
LANGUAGE ENGLISH

DESCRIPTORS INCREASED BACTERIAL
MEMBRANE FLUIDITY
CONCEPT CODES
02508 Cytology and Cytochemistry-Human
10508 Biophysics-Membrane Phenomena
15002 Blood, Blood-Forming Organs and Body Fluids-Blood and Lymph Studies
15008 Blood, Blood-Forming Organs and Body Fluids-Lymphatic Tissue and Reticuloendothelial System
30500 Morphology and Cytology of Bacteria
31000 Physiology and Biochemistry of Bacteria
34504 Immunology and Immunochemistry-Bacterial, Viral and Fungal
34508 Immunology and Immunochemistry-Immunopathology, Tissue Immunology
36002 Medical and Clinical Microbiology-Bacteriology
00520 General Biology-Symposia, Transactions and Proceedings of Conferences, Congresses, Review Annuals

BIOSYSTEMATIC CODES
05110 Neisseriaceae (1979-)
86215 Homindae
BIOSYSTEMATIC CLASSIFICATION (SUPER TAXA)
Microorganisms
Bacteria
Animals
Chordates
Vertebrates
Mammals
Primates
Humans

10/9/9 (Item 5 from file 5)
DIALOG(R)File 5 Biosis Previews(R)
(c) 1999 BIOSIS All rts reserv

03270202 BIOSIS NO. 000071083313
EVIDENCE THAT STREPTOCOCCUS-MUTANS CONSTRUCTS ITS MEMBRANE WITH EXCESS FLUIDITY FOR SURVIVAL AT SUBOPTIMAL TEMPERATURES

AUTHOR TSJEN H, PANOS C, SHOCKMAN G D, HIGGINS M L
AUTHOR ADDRESS DEP MICROBIOL IMMUNOL, TEMPLE UNIV, SCH MED, PHILADELPHIA PA 19140, USA

JOURNAL J GEN MICROBIOL 121 (1) 1980 (RECD 1981) 105-112
FULL JOURNAL NAME Journal of General Microbiology
CODEN JGMIA
RECORD TYPE Abstract
LANGUAGE ENGLISH

ABSTRACT When cells from cultures of *S. mutans* strain FA-1 grown at 37 degree C were exposed to incubation temperatures of 26 degree C or less for 5 min or more, an extensive aggregation of particles was observed on the convex fracture faces of their freeze-cleaved membranes. Aggregation of particles was accompanied by a parallel increase in the activation energy for growth. By shifting the growth temperature from 37-24 degree C for 1 doubling of culture mass, the transition temperature for membrane particle aggregation could be lowered from about 26-0 degree C. Although membrane lipids became enriched with unsaturated fatty acids during this period of growth at 24 degree C, this enrichment was not accompanied by an increased growth rate of the culture. The period of growth at 24 degree C did result in bacteria that could grow more rapidly at 10 degree C than could bacteria directly transferred from cultures grown at 37 degree C. Thus, the % increase in % membrane % fluidity % that occurs when % bacteria % are grown at 24 degree C does not allow bacteria to grow faster at 24 degree C but rather allows them to adapt more readily to further decreases in growth temperature.

DESCRIPTORS GROWTH ACTIVATION ENERGY FATTY-ACIDS
CONCEPT CODES

*0508 Biophysics-Membrane Phenomena
*0614 External Effects-Temperature as a Primary Variable (1971-)
*3002 Metabolism-General Metabolism: Metabolic Pathways
30500 Morphology and Cytology of Bacteria
31000 Physiology and Biochemistry of Bacteria
10010 Comparative Biochemistry, General
10050 Biochemical Methods-General
10060 Biochemical Studies-General
10066 Biochemical Studies-Lipids
10502 Biophysics-General Biophysical Studies
10504 Biophysics-General Biophysical Techniques
10506 Biophysics-Molecular Properties and Macromolecules
10616 External Effects-Temperature as a Primary Variable-Cold (1971-)
10618 External Effects-Temperature as a Primary Variable-Hot (1971-)
13202 Nutrition-General Studies, Nutritional Status and Methods
23002 Temperature: Its Measurement, Effects and Regulation-General Measurement and Methods
23004 Temperature: Its Measurement, Effects and Regulation-Cryobiology
32000 Microbiological Apparatus, Methods and Media
32300 Microbiological Ultrastructure (1972-)
KIOSYSTEMATIC CODES
05514 Streptococcaceae (1979-)
KIOSYSTEMATIC CLASSIFICATION (SUPER TAXA)
Microorganisms
Bacteria
ds

Set Items Description
~1 187-321 BACTER?
~2 0 MEMBRANE#
~3 1452758 MEMBRANE?
~4 0 S1 (10N) S2
~5 26356 S1 (10N) S3
~6 3058102 INCREASES? OR ENHANC?
~7 507785 FLUID?
~8 26248 S6 (10N) S7
~9 15 S5 (10N) S8
~10 10 RD S9 (unique items)
s unsaturated (5n) fatty (w) acid?

74453 UNSATURATED
248583 FATTY
2568254 ACID?
S11 18323 UNSATURATED (5N) FATTY (W) ACID?
s s6-10n s11

3058102 S6
18323 S11
S12 1620 S6 (10N) S11
s s12 and s5

1620 S12
26356 S5
S13 17 S12 AND S5
rd s13

completed examining records
S14 14 RD S13 (unique items)
ts 4k/1-14

14/K/1 (Item 1 from file 55)
DIALOG(R)File 55 (c) 1999 BIOSIS All rts reserv

Adaptive changes in % membrane % lipids of barophilic
% bacteria % in
response to changes in growth pressure

ABSTRACT saturated fatty acids in PE were reduced, and these decreases were mainly balanced by an % increase % in % unsaturated % % fatty % % acids % including DHA. In PG, the decrease in saturated fatty acids was mainly balanced by an

14/K/2 (Item 2 from file 55)
DIALOG(R)File 55 (c) 1999 BIOSIS All rts reserv

ABSTRACT The physiological significance of trans unsaturated fatty acids, which are constituents of % membrane % lipids of the phenol-degrading % bacterium % *Pseudomonas putida* P8, was studied. The addition of phenol or phenol derivatives to the cells

occurred at higher toxin concentrations compared with free cells. Cells entering the stationary growth phase % increased % the proportion of saturated to % unsaturated % % fatty % % acids % but maintained a constant trans/cis ratio. *P. putida* P8 reacted to an increase or

14/K/3 (Item 1 from file 5)
DIALOG(R)File 5 (c) 1999 BIOSIS All rts reserv

ABSTRACT 5, 15, 25 and 37 degree C were analyzed and the physical states of these % membrane % lipids were characterized. The major phospholipids of this % bacterium % were phosphatidylethanolamine, phosphatidylglycerol, cardiolipin, lysophosphatidylglycerol and lysophosphatidylethanolamine. No significant difference in phospholipid composition in response

the change of culture temperature. When the culture temperature was raised, the saturated and cyclopropane % fatty % % acids % substantially % increased % and the % unsaturated % ones decreased. A reverse phenomenon was observed when culture temperature was lowered. From the viewpoints

14/K/4 (Item 2 from file 5)
DIALOG(R)File 5 (c) 1999 BIOSIS All rts reserv

ABSTRACT ethanol. (2) Effect on membrane fatty acid composition was investigated in vitro. Ethanol (3%) markedly % increased % proportions of % unsaturated % % fatty % % acids % (UFA) of mixed rumen microorganisms. Experiments with single strains of rumen bacteria showed that bacteria

growth by ethanol, the less significant changes in fatty acid composition were seen. Some rumen % bacteria % appear to change their % membrane % fatty acid composition as a way of adaptation to ethanol. In conclusion, ethanol is not

14/K/5 (Item 3 from file 5)
DIALOG(R)File 5 (c) 1999 BIOSIS All rts reserv

% MEMBRANE % LIPIDS OF A PSYCHROPHILIC AND BAROPHILIC DEEP-SEA
% BACTERIUM %

ABSTRACT a psychrophilic and barophilic marine bacterial isolate of the genus *Alteromonas*, the ratio of total % unsaturated % versus saturated % fatty % % acids % in the membrane lipids % increased % when the organism was grown at increasing hydrostatic pressure and decreasing temperatures. This regulatory capacity

14/K/6 (Item 4 from file 5)
DIALOG(R)File 5 (c) 1999 BIOSIS All rts reserv

ABSTRACT mechanisms remain to be clarified. The ciliated protozoan *Tetrahymena pyriformis* (NT-1), with its defined % membrane % organization and % bacteria % like rapid growth, has been employed as a suitable model system for studying the thermal

degree C-grown *Tetrahymena* cells were shifted to 15 degree C, the relative proportion of % unsaturated % % fatty % % acids % especially gamma-linolenic acid, was % increased % with a compensating decrease of palmitic acid in phospholipids. However, after the shift, the rate

of reacylation enzyme activities during temperature acclimation would exert only a small contribution to the %%%increased%%% level of %%%unsaturated%%% %%%fatty%%% %%%acids%%% in phospholipids. In contrast the reacylating enzymes would partially participate in the %%%increase%%% of %%%unsaturated%%% %%%fatty%%% %%%acid%%% content in 15 degree C-grown cells. On the other hand the deacylation enzyme phospholipase

14/K/7 (Item 5 from file 5)
DIALOG(R)File 5(c) 1999 BIOSIS All rts. reserv

%%%BACTERIAL%%% %%%MEMBRANES%%% AND LIPID PACKING THEORY

ABSTRACT species of phosphatidylethanolamine [PE] p asmenylethanolamine or monoglycosyldiacylglycerols, all of which are important constituents of the %%%membranes%%% of different groups of prokaryotes. The polar lipid compositions of %%%bacteria%%% are examined in terms of lipid packing theory. This survey reveals that gram-negative species

of organisms, and by incorporation of cholesterol in A. laidlawii. As the content of cis-%%unsaturated%% %%%fatty%% %%%acids%% or temperature is %%%increased%%, lipids that form an unstable lamellar phase at physiological temperatures are replaced with lipids that

14/K/6 (Item 6 from file 5)
DIALOG(R)File 5(c) 1999 BIOSIS All rts. reserv

ABSTRACT at its restrictive temperature in the presence of exogenous palmitate results in lysis of the %%%bacterium%%%. Under these conditions palmitate is incorporated into %%%membrane%%% phospholipid to a high level. Mutants of %%%bacteria%%% restricting this incorporation (having a palmitate-resistant phenotype) were isolated and 1 such mutant strain

in its acyltransferase activities. The mutation(s) of strain LB-2/3 appears to allow %%%increased%%% (approx. 2-fold) incorporation of myristate (and possible %%%unsaturated%% %%%fatty%% %%%acids%%) into position 2 of 1-acyl-sn-glycerol 3-phosphate but normal palmitate incorporation into

14/K/9 (Item 7 from file 5)
DIALOG(R)File 5(c) 1999 BIOSIS All rts. reserv

ABSTRACT 2.5- to 9.6-fold when the growth medium was supplemented with a saturated %%%unsaturated%%% or beta-hydroxy %%%fatty%% %%%acid%%% the greatest %%%increase%%% occurring with palmitic acid. The amount of each supplemented fatty acid found within this organism

DESCRIPTORS %%%MEMBRANE%%% FLUIDITY OSMOTIC FRAGILITY %%%BACTERICIDAL%%% ACTIVITY %%%BACTERIOSTATIC%%% ACTIVITY TETRACYCLINE ERYTHROMYCIN ANTIBACTERIAL-DRUG CHOLESTEROL CONTENT HYDROGEN PER OXIDE SECRETION BETA-HYDROXY DECANOIC-ACID

14/K/10 (Item 8 from file 5)
DIALOG(R)File 5(c) 1999 BIOSIS All rts. reserv

ABSTRACT rabbits a 10-fold greater number of cells than could be obtained from control rabbits. %%%increased%%% amounts of %%%unsaturated%% %%%free %%%fatty%% %%%acids%%% were present in the lavage

lipids of injected rabbits and no change in the amount

concentrations of N-formylmethionyl-phenylalanine similar to those which stimulate macrophage chemotaxis and bactericidal activity

%%%enhance%%% this fatty acid release. Alveolar macrophages incorporate both saturated and %%%unsaturated%% %%%fatty%% %%%acids%%% with similar efficiency, primarily into phospholipids and triacylglycerols. Activation of alveolar macrophages, which results in

DESCRIPTORS COMPLETE FREUND'S ADJUVANT %%%MEMBRANE%%% COMPONENTS N-FORMYL METHIONINE PHENYL ALANINE CHEMOTAXIS %%%BACTERICIDAL%%% ACTIVITY PULMONARY INFLAMMATORY RESPONSE PHOSPHOLIPASE PHOSPHATIDYL CHOLINE TRIACYL GLYCEROL PHOSPHOLIPID BRONCHO ALVEOLAR

14/K/11 (Item 9 from file 5)
DIALOG(R)File 5(c) 1999 BIOSIS All rts. reserv

ESR STUDIES ON THE %%%MEMBRANE%%% PROPERTIES OF A MODERATELY HALOPHILIC %%%BACTERIUM%%% 2. EFFECT OF EXTREME GROWTH CONDITIONS ON LIPOSOME PROPERTIES

ABSTRACT in medium containing 0.5 M NaCl had decreased concentrations of these fatty acids with %%%increased%%% concentrations of the corresponding %%%unsaturated%% %%%fatty%% %%%acids%%%. The phospholipid composition was affected by the culture conditions, cells grown at 40 degree C

and order parameters of three spin labels of stearic acid derivatives similar to those of %%%membranes%%% of whole cells of this %%%bacterium%%%. ESR studies showed that the physical properties of the liposomes from the total extractable lipids

14/K/12 (Item 10 from file 5)
DIALOG(R)File 5(c) 1999 BIOSIS All rts. reserv

ARCHITECTURE OF THE OUTER %%%MEMBRANE%%% OF ESCHERICHIA-COLI K-12 PHASE TRANSITIONS OF THE %%%BACTERIO%%% PHAGE K-3 RECEPTOR COMPLEX

ABSTRACT at 12 degree C differs in that in the latter case the amounts of mono-%%unsaturated%% %%%fatty%% %%%acids%%% (mainly palmitoleic acid) are %%%increased%%% at the expense of lauric acid. This difference in fatty acid composition probably explains the

14/K/13 (Item 11 from file 5)
DIALOG(R)File 5(c) 1999 BIOSIS All rts. reserv

ABSTRACT by measuring permeability change of lipid bilayer, liposome. Both decrease in the cholesterol content and %%%increase%%% in the content of %%%unsaturated%% %%%fatty%% %%%acid%%% moieties in the lipid bilayers augmented the susceptibility of the liposomes to the mercurial compounds

DESCRIPTORS ANIMAL %%%BACTERIA%%% LIPID %%%MEMBRANE%%% CHOLESTEROL

14/K/14 (Item 1 from file 144)
DIALOG(R)File 144(c) 1999 INIST/CNRS All rts. reserv

There is considerable evidence correlating the production of %%%increased%%% proportions of %%%membrane%%% unsaturated %%%fatty%% %%%acids%%% (UFAs) with %%%bacterial%%% growth at low temperatures or high pressures. In order to assess the importance of UFAs

? PLEASE ENTER A COMMAND OR BE LOGGED OFF IN 5 MINUTES
? ts14/9/3, 5, 6, 7, 8, 9, 12, 13, 14

14/9/3 (Item 1 from file 5)
DIALOG(R)File 5 Biosis Previews(R)
(c) 1999 BIOSIS All rts. reserv

08048053 BIOSIS NO. 000093081401
ADAPTATIONAL CHANGES OF FATTY ACID COMPOSITION AND THE PHYSICAL STATE OF MEMBRANE LIPIDS FOLLOWING THE CHANGE OF GROWTH TEMPERATURE IN YERSINIA-ENTEROCOLITICA

AUTHOR NAGAMACHI E. SHIBUYA S-I. HIRAI Y. MATSUSHITA O. TOMOCHIKA K-I. KANEMASA Y.
AUTHOR ADDRESS DEP MICROBIOL., OKAYAMA UNIV. MED. SCH. OKAYAMA, OKAYAMA 700, JPN

JOURNAL MICROBIOL IMMUNOL 35 (12) 1991 1085-1094
FULL JOURNAL NAME Microbiology and Immunology
CODEN MIIMD
RECORD TYPE Abstract
LANGUAGE ENGLISH

ABSTRACT Yersinia enterocolitica is capable of growing in a broad range of temperatures from 4 to 45 degree C. How this organism alters its membrane lipids in response to the change of growth temperature is very interesting. The fatty acids of membrane lipids of cells cultured at 5

15, 25 and 37 degree C were analyzed and the physical states of these
%%membrane%% lipids were characterized. The major phospholipids of
this

%%bacterium%% were phosphatidylethanolamine, phosphatidylglycerol,
cardiolipin, lysophosphatidylglycerol and lysophosphatidylethanolamine.
No significant difference in phospholipid composition in response to
culture temperatures was observed. It was reported in our previous paper
that the major fatty acids of membrane phospholipids of *Y. enterocolitica*
were C15:0, C16:0, C16:1, cyclopropane C17:0 and C18:0. Some differences
in the fatty acid composition were, however, observed with the change of
culture temperature. When the culture temperature was raised, the
saturated and cyclopropane %%fatty%% %%acids%% substantially
%%increased%% and the %%unsaturated%% ones decreased. A

reverse
phenomenon was observed when culture temperature was lowered. From the
viewpoints of membrane physical state, adaptational changes were analyzed
using a nylon microcapsule method. Phase transition in membrane lipids of
cells grown at each culture temperature took place in the range of about
5 degree C below and about 10 degree C above the culture temperature.
It is, therefore, considered that *Y. enterocolitica* maintains its
membrane rigidity and fluidity in response to growth temperature by
changing the membrane fatty acid composition.

DESCRIPTORS: PHASE TRANSITION FLUIDITY RIGIDITY
CONCEPT CODES

1C066 Biochemical Studies-Lipids
1C506 Biophysics-Molecular Properties and Macromolecules
1L508 Biophysics-Membrane Phenomena
1G614 External Effects-Temperature as a Primary Variable (1971-)
1G616 External Effects-Temperature as a Primary Variable-Cold (1971-)
1G618 External Effects-Temperature as a Primary Variable-Hot (1971-)
3C500 Morphology and Cytology of Bacteria
31000 Physiology and Biochemistry of Bacteria

BIOSYSTEMATIC CODES

06702 Enterobacteriaceae (1992-)

BIOSYSTEMATIC CLASSIFICATION (SUPER TAXA)

Microorganisms

Bacteria

Eubacteria

14/9/5 (Item 3 from file 5)

DIALOG(R)File 5 Biosis Previews(R)

(c) 1999 BIOSIS All rts. reserv

05691349 BIOSIS NO 000084039754

%%MEMBRANE%% LIPIDS OF A PSYCHROPHILIC AND BAROPHILIC
DEEP-SEA

%%BACTERIUM%%

AUTHOR WIRSEN C O JANNASCH H W WAKEHAM S G CANUEL E A

AUTHOR ADDRESS WOODS HOLE OCEANOGRAPHIC INST WOODS

HOLE MASS 02543

USA

JOURNAL CURR MICROBIOL 14 (6) 1987 319-322

FULL JOURNAL NAME Current Microbiology

CODEN CUMID

RECORD TYPE Abstract

LANGUAGE ENGLISH

ABSTRACT In a psychrophilic and barophilic marine bacterial isolate of the
genus *Alteromonas*, the ratio of total %%unsaturated%% versus saturated
%%fatty%% %%acids%% in the membrane lipids
%%increased%% when the
organism was grown at increasing hydrostatic pressure and decreasing
temperatures. This regulatory capacity, as well as the presence of
relatively large amounts of 20:5 polyunsaturated fatty acid, appear to be
functional in maintaining membrane fluidity within a range of pressures
distinctly below and above the specific optimum and at typical deep sea
temperatures.

DESCRIPTORS: ALTEROMONAS-SP UNSATURATED FATTY ACID

SATURATED FATTY ACID

MEMBRANE FLUIDITY

CONCEPT CODES

07512 Ecology, Environmental Biology-Oceanography
10066 Biochemical Studies-Lipids
10508 Biophysics-Membrane Phenomena
30000 Bacteriology, General and Systematic
30500 Morphology and Cytology of Bacteria
31000 Physiology and Biochemistry of Bacteria
10506 Biophysics-Molecular Properties and Macromolecules
23011 Temperature: Its Measurement, Effects and Regulation-General
Measurement and Methods

BIOSYSTEMATIC CODES

04716 Pseudomonadaceae (1979-)

BIOSYSTEMATIC CLASSIFICATION (SUPER TAXA)

Microorganisms

Bacteria

14/9/5 (Item 4 from file 5)

DIALOG(R)File 5 Biosis Previews(R)

(c) 1999 BIOSIS All rts. reserv

05531305 BIOSIS NO 000083004444

BIOCHEMICAL STUDIES ON MOLECULAR MECHANISM FOR
ENVIRONMENTAL ADAPTATION OF
MEMBRANE LIPIDS ALTERATIONS OF ACYLTRANSFERASE AND
PHOSPHOLIPASE
ACTIVITIES IN COLD ACCLIMATION

AUTHOR YOSHIOKA S

AUTHOR ADDRESS DEP OF BIOCHEMISTRY, GIFU UNIV SCH OF MED

JOURNAL ACTA SCH MED UNIV GIFU 33 (5) 1985 (RECD 1986) 763-793

FULL JOURNAL NAME Acta Scholae Medicinalis Universitatis in Gifu

CODEN GDIKA

RECORD TYPE Abstract

LANGUAGE JAPANESE

ABSTRACT It is well known that many organisms can modify their fatty acyl
chain composition of membrane phospholipids to facilitate survival at
altered growth temperature. The molecular mechanisms of fatty acid
alteration have been investigated for not only eukaryotic but also
prokaryotic cells, but the precise mechanisms remain to be clarified. The
ciliated protozoan, *Tetrahymena pyriformis* (NT-1), with its defined
%%membrane%% organization and %%bacteria%%-like rapid growth
has

been employed as a suitable model system for studying the thermal
acclimation of membrane phospholipids. In the present study, we have
attempted to explore the mechanism for the alteration of the fatty acyl
composition of membrane phospholipids and characterized the deacylation
and reacylation activities after the downward temperature-shift in
Tetrahymena pyriformis cells. When 39 degree C-grown *Tetrahymena* cells
were shifted to 15 degree C the relative proportion of %%unsaturated%%
%%fatty%% %%acids%%, especially gamma-linolenic acid, was
%%increased%%, with a compensating decrease of palmitic acid in
phospholipids. However, after the shift, the rate of incorporation of
[14C]acetate into fatty acids was reduced to less than one-tenth and the
principal newly synthesized fatty acid was linoleic acid, and palmitic
and gamma-linolenic acids were labeled with [14C]acetate to a nearly
same extent. In contrast, when the cells prelabeled with both [32P]Pi and
[14C]palmitic acid were shifted to 15 degree C and then linoleic and
gamma-linolenic acids were added to the culture, the [14C]/[32P] ratios
of major phospholipids were progressively decreased until 5 hr after the
shift. These results suggest that preexisting fatty acids associated with
membrane phospholipids are deacylated by phospholipase(s) and then
reacylated into lysophospholipids after modification to adequate
unsaturated fatty acids by desaturation and/or elongation. In order to
clarify these two pathways, the reacylation and deacylation enzyme
activities were characterized using microsomes and homogenate from
Tetrahymena cells. It is to be noted that this alteration of acyl
composition was found to occur predominantly at the C-1 position of
phospholipids. Microsomes isolated from *Tetrahymena* cells showed
reacylation activities not only for

1-acyl-sn-glycerol-3-phosphorylcholine (1-acyl-GPC) and
1-acyl-sn-glycerol-3-phosphorylethanolamine (1-acyl-GPE) but also for
2-acyl-GPC and 2-acyl-GPE. Both acyltransferases had the different
acylation rates for palmitoyl-CoA, oleoyl-CoA, linoleoyl-CoA and
gamma-linolenoyl-CoA. However, these specificities for various
acyl-CoAs of lysophospholipid acyltransferases were unchanged in the
microsomes isolated from the cells grown isothermally at 39 degree C or
15 degree C and the cells shifted from 39 degree C to 15 degree C. In
contrast, the ratio of acylating activity of linoleoyl-CoA to
palmitoyl-CoA in microsomes from 15 degree C-grown cells was 1.5-3.0 fold
higher than in microsomes from 39 degree C-grown cells at 39 degree C and
15 degree C incubation temperature. These results suggest that the
changes in substrate (acyl-CoA) specificities of reacylation enzyme
activities during temperature acclimation would exert only a small
contribution to the %%increased%% level of %%unsaturated%%
%%fatty%% %%acids%% in phospholipids. In contrast, the reacylating
enzymes would partially participate in the %%increase%% of
%%unsaturated%% %%fatty%% %%acid%% content in
15 degree C-grown
cells. On the other hand, the deacylation enzyme, phospholipase A, of
Tetrahymena hydrolyzed the fatty acyl chain of the C-1 position of
phosphatidylcholine and phosphatidylethanolamine. Temperature dependency
of phospholipase A1 activity for phosphatidylcholine and
phosphatidylethanolamine was very similar for the homogenates prepared
from 39 degree C and 15 degree C-grown cells. However, there was a
two-fold increase in these enzyme activities at 7 hr after the downward
temperature-shift. The above observations lead us to draw the conclusion
for the mechanism of fatty acid alteration in *Tetrahymena* membranes that
when cells are shifted to the lower growth temperature, the deacylation
enzyme activity (phospholipase A) is activated and unsaturated fatty
acids are reacylated to lysophospholipids by the acyltransferases.

DESCRIPTORS: TETRAHYMENA-PYRIFORMIS ACETYL COENZYME A

CARBON-14 ACETATE

CONCEPT CODES

02506 Cytology and Cytochemistry-Animal
10508 Biophysics-Membrane Phenomena
10616 External Effects-Temperature as a Primary Variable-Cold (1971-)
10806 Enzymes-Chemical and Physical

13006 Metabolism-Lipids
23010 Temperature Its Measurement, Effects and Regulation-Thermoadaptation
64002 Invertebrata, Comparative and Experimental Morphology Physiology and Pathology-Protozoa
01012 Methods, Materials and Apparatus, General-Photography
06504 Radiation-Radiation and Isotope Techniques
10064 Biochemical Studies-Proteins, Peptides and Amino Acids
10066 Biochemical Studies-Lipids
10802 Enzymes-General and Comparative Studies Coenzymes
23001 Temperature Its Measurement, Effects and Regulation-General Measurement and Methods

BIOSYSTEMATIC CODES

35100 Ciliata

BIOSYSTEMATIC CLASSIFICATION (SUPER TAXA)

Microorganisms
Animals
Invertebrates
Protozoans

14/9/7 (Item 5 from file 5)

DIALOG(R)File 5 Biosis Previews(R)

(c) 1999 BIOSIS All rts reserv

04694847 BIOSIS NO 000079107976

%%BACTERIAL%% MEMBRANES%% AND LIPID PACKING THEORY

AUTHOR: GOLDFINE H

AUTHOR ADDRESS: DEPARTMENT OF MICROBIOLOGY, SCHOOL OF MEDICINE UNIVERSITY OF PENNSYLVANIA, PHILADELPHIA, PA 19104

JOURNAL J LIPID RES 25 (13) 1984 (RECD 1985) 1501-1507

FULL JOURNAL NAME Journal of Lipid Research

CODEN JLPRA

RECORD TYPE Abstract

LANGUAGE ENGLISH

ABSTRACT Recent physical studies on the lipids of biological membranes have emphasized the potential instability of the lamellar phase of mixtures of lipids containing unsaturated species of phosphatidylethanolamine (PE), plasmalogen phosphatidylethanolamine or monoglycosyl diacylglycerols, all of which are important constituents of the membranes of different groups of prokaryotes. The polar lipid compositions of bacteria are examined in terms of lipid packing theory. This survey reveals that gram-negative species with high proportions of unsaturated fatty acids (> 65%) often have phosphatidylcholine (PC) in addition to the more common PE, phosphatidylglycerol and cardiolipin. Physical studies have shown that PC is capable of inducing the bilayer phase when added to unsaturated PE. Many bacteria that are rich in unsaturated fatty acids and contain PC have intracytoplasmic membrane systems (ICM), and the potential role of bilayer instability in the formation of ICM is discussed. Two groups of bacteria that are either natural fatty acid auxotrophs or utilize exogenous fatty acids when endogenous synthesis is inhibited, *Acholeplasma laidlawii* and the butyric acid-producing clostridia, are capable of adjusting their lipid class compositions according to the degree of unsaturation of their lipid aliphatic chains. Lipid class composition is also affected by growth temperature in both groups of organisms, and by incorporation of cholesterol in *A. laidlawii*. As the content of cis-unsaturated fatty acids increases, the membranes of these organisms become more unstable. Lipids that form an unstable lamellar phase at physiological temperatures are replaced with lipids that have larger effective polar head groups, and can therefore form more stable bilayers.

DESCRIPTORS: ACHOLEPLASMA-LAIDLAWII GRAM-NEGATIVE SPECIES BUTYRIC-ACID-PRODUCING CLOSTRIDIA PHOSPHATIDYLETHANOLAMINE PHOSPHATIDYLCHOLINE CARDIOLIPIN PHOSPHATIDYLGLYCEROL LAMELLAR PHASE

CONCEPT CODES

10066 Biochemical Studies-Lipids
10506 Biophysics-Molecular Properties and Macromolecules
10508 Biophysics-Membrane Phenomena
13006 Metabolism-Lipids
30500 Morphology and Cytology of Bacteria
31000 Physiology and Biochemistry of Bacteria
10069 Biochemical Studies-Minerals
10504 Biophysics-General Biophysical Techniques
10614 External Effects-Temperature as a Primary Variable (1971-)
13008 Metabolism-Steroids and Steroids

BIOSYSTEMATIC CODES

05610 Bacillaceae (1979-)

09110 Acholeplasmataceae (1979-)

BIOSYSTEMATIC CLASSIFICATION (SUPER TAXA)

Microorganisms
Bacteria

14/9/8 (Item 6 from file 5)

DIALOG(R)File 5 Biosis Previews(R)

(c) 1999 BIOSIS All rts reserv

04244457 BIOSIS NO 000077070502

ALTERED ACYL TRANSFERASE ACTIVITY IN ESCHERICHIA-COLI ASSOCIATED WITH MUTATIONS IN ACYL COENZYME A SYNTHETASE EC-6.2.1.3

AUTHOR: GREENWAY D L A, SILBERT D F

AUTHOR ADDRESS: MICROBIOL. DEPT., LIFE SCI. BUILD., UNIV. LIVERPOOL, P.O. BOX 147, LIVERPOOL L69 3BX, ENGLAND

JOURNAL J BIOL CHEM 258 (21) 1983 13034-13042

FULL JOURNAL NAME Journal of Biological Chemistry

CODEN JBCHA

RECORD TYPE Abstract

LANGUAGE ENGLISH

ABSTRACT: Growth of a temperature-sensitive general fatty acid synthesis mutant of *E. coli* K12 at its restrictive temperature in the presence of exogenous palmitate results in lysis of the bacterium. Under these conditions, palmitate is incorporated into membrane phospholipid to

a high level. Mutants restricting this incorporation (having a palmitate-resistant phenotype) were isolated and 1 such mutant strain L8-2/3, was further characterized. This mutant has lowered acyl-CoA synthetase (fadD) activity (25-33% of normal) and consequently is defective in fatty acid uptake. This lowered uptake could explain the palmitate-resistant phenotype of strain L8-2/3. However, in vivo (fatty acid composition and positional distribution data) and in vitro (acyltransferase activity measurements) experiments suggest that this mutant is also altered in its acyltransferase activities. The mutation(s) of strain L8-2/3 appears to allow increased (approx. 2-fold) incorporation of myristate (and possible unsaturated fatty acids) into position 2 of 1-acyl-sn-glycerol 3-phosphate but normal palmitate incorporation into the same position. The incorporation of palmitate, myristate and oleate into position 1 of sn-glycerol 3-phosphate by strain L8-2/3 is also higher than that observed with the parent strain L8-2. Replacing the partially defective fadD gene of strain L8-2/3 with a wild type allele conferred on this strain of the palmitate sensitivity and the acyltransferase activity of the parent strain L8-2. Thus, acyl-CoA synthetase evidently interacts with the acyltransferase(s) in some manner to influence the fatty acid specificity of the acyltransferase.

DESCRIPTORS: FAD-D GENE FATTY-ACID SPECIFICITY PALMITATE

MYRISTATE OLEATE 1

ACYL-SN GLYCEROL 3 PHOSPHATE

CONCEPT CODES

10802 Enzymes-General and Comparative Studies Coenzymes
10806 Enzymes-Chemical and Physical
13006 Metabolism-Lipids
31000 Physiology and Biochemistry of Bacteria
31500 Genetics of Bacteria and Viruses
10062 Biochemical Studies-Nucleic Acids, Purines and Pyrimidines
10066 Biochemical Studies-Lipids
10508 Biophysics-Membrane Phenomena
10614 External Effects-Temperature as a Primary Variable (1971-)
23001 Temperature Its Measurement, Effects and Regulation-General Measurement and Methods

30500 Morphology and Cytology of Bacteria

32000 Microbiological Apparatus, Methods and Media

BIOSYSTEMATIC CODES

04810 Enterobacteriaceae (1979-)

BIOSYSTEMATIC CLASSIFICATION (SUPER TAXA)

Microorganisms
Bacteria

14/9/9 (Item 7 from file 5)

DIALOG(R)File 5 Biosis Previews(R)

(c) 1999 BIOSIS All rts reserv

03355260 BIOSIS NO 000072083364

LONG CHAIN FATTY-ACID PERTURBATIONS IN MYCOPLASMA-PNEUMONIAE

AUTHOR: LEON O, PANOS C

AUTHOR ADDRESS: DEP. MICROBIOL., JEFFERSON MED. COLLEGE, THOMAS JEFFERSON UNIV., PHILADELPHIA, PENNSYLVANIA 19107

JOURNAL J BACTERIOL 146 (3) 1981 1124-1134

FULL JOURNAL NAME Journal of Bacteriology

CODEN JOBAA

RECORD TYPE Abstract

LANGUAGE ENGLISH

ABSTRACT: The fatty acid content of *M. pneumoniae* increased 2.5- to 9.6-fold when the growth medium was supplemented with a saturated fatty acid or beta-hydroxy fatty acid. The greatest

increase occurring with palmitic acid. The amount of each supplemented fatty acid found within this organism was 2.8-5.5% of the total fatty acid content; the exception was palmitic acid. Up to 57% of the palmitic acid was utilized from the supplemented medium, only 0.2-10% of the other fatty acids was utilized. Chromatographic and isotopic analyses revealed that 22% of the labeled palmitic acid incorporated from the palmitic acid-supplemented medium remained free in this organism. Although complex lipid synthesis increased a minimum of 3.8-fold under these conditions, this mycoplasma continued to incorporate intact complex lipids from the growth medium. Bacteriostatic and bactericidal studies which used high concentrations of various long-chain fatty acids showed that only palmitic, myristic and β -hydroxydecanoic acids were not bactericidal. The addition of palmitic acid to the growth medium resulted in the formation of exceedingly long, filamentous cells in approx. 25% of the population. Osmotic fragility and ESR spectroscopy studies showed a correlation among this increased fatty acid content, decreased membrane fluidity and the increased osmotic fragility of palmitic acid-grown cells. The cells also had a lowered cholesterol content. The effect of such compositional changes on osmotic fragility is discussed. The profound increase in the total fatty acid content of palmitic acid-grown cells did not alter sensitivity to tetracycline or erythromycin or the amount of H₂O₂ secreted.

DESCRIPTORS: MEMBRANE FLUIDITY OSMOTIC FRAGILITY
BACTERICIDAL
ACTIVITY BACTERIOSTATIC ACTIVITY TETRACYCLINE
ERYTHROMYCIN
ANTIBACTERIAL-DRUG CHOLESTEROL CONTENT HYDROGEN PER OXIDE
SECRETION BETA
HYDROXY DECAOIC-ACID MYRISTIC-ACID PALMITIC-ACID COMPLEX
LIPID SYNTHESIS
CONCEPT CODES

10508 Biophysics-Membrane Phenomena
13002 Metabolism-General Metabolism, Metabolic Pathways
13006 Metabolism-Lipids
13008 Metabolism-Sterols and Steroids
22501 Toxicology-General, Methods and Experimental
31000 Physiology and Biochemistry of Bacteria
06504 Radiation-Radiation and Isotope Techniques
10011 Biochemistry-Physiological Water Studies (1970-)
10056 Biochemical Methods-Lipids
10060 Biochemical Studies-General
10066 Biochemical Studies-Lipids
10067 Biochemical Studies-Sterols and Steroids
10504 Biophysics-General Biophysical Techniques
12100 Movement (1971-)
13222 Nutrition-Lipids (1972-)
22002 Pharmacology-General
30600 Morphology and Cytology of Bacteria
32000 Microbiological Apparatus, Methods and Media
38504 Chemotherapy-Antibacterial Agents

BIOSYSTEMATIC CODES
0912 Mycoplasmataceae (1979-)

BIOSYSTEMATIC CLASSIFICATION (SUPER TAXA)
Microorganisms
Bacteria

14/9/12 (Item 10 from file 5)
DIALOG(R)File 5 Biosis Previews(R)
(c) 1999 BIOSIS All rights reserved

02950708 BIOSIS NO 000069058826
ARCHITECTURE OF THE OUTER MEMBRANE OF
ESCHERICHIA-COLI K-12 PHASE
TRANSITIONS OF THE BACTERIOPHAGE K-3 RECEPTOR
COMPLEX

AUTHOR VAN ALPHEN L. LUGTENBERG B. RIETSCHEL E. T. MOMBERS C.
AUTHOR ADDRESS LAB. MOL. CELBIOL., RIJKSUNIV. UTR., UNIV. CENT.
DE
LUTHOF, TRANSITORIUM 3, PADUALAAN 8, NL-3584 CHUTRECHT, NETH.

JOURNAL EUR J BIOCHEM 101 (2) 1979 (RECD. 1980) 571-580
FULL JOURNAL NAME European Journal of Biochemistry
CODEN EJBCHA
RECORD TYPE Abstract
LANGUAGE ENGLISH

ABSTRACT: The adsorption constant of the irreversible adsorption of the bacteriophage K3 to E. coli K12 bacteria is strongly dependent on the incubation temperature. Two inflection points are observed in an Arrhenius plot. For cells grown at 37 degree C the inflection points are found at 20 degree C and 28 degree C, whereas these inflection points shift to 10 degree C and 19 degree C for cells grown at 12 degree C. To study the lipid environment of the receptor, the temperature dependence of the inactivation of bacteriophage K3 was measured in vitro in the presence of various lipids. The Arrhenius plots of the rate of inactivation of phage K3 by complexes of protein d and lipopolysaccharide are very similar to those observed for whole cells. With lipopolysaccharide isolated from cells grown at 37 degree C inflection points are observed at 20 degree C and 28 degree C. With lipopolysaccharide from cells grown at 12 degree C the inflection points

are found at 10 degree C and 21 degree C. The environment of protein d in vivo can be mimicked perfectly in vitro by protein d/lipopolysaccharide complexes. The fatty acid composition of lipopolysaccharide isolated from cells grown at 37 degree C and at 12 degree C differs in that in the latter case the amounts of mono-unsaturated fatty acids (mainly palmitoleic acid) are increased at the expense of lauric acid. This difference in fatty acid composition probably explains the difference in the phase transition temperatures caused by the 2 lipopolysaccharide preparations. A transition at the inflection point of the highest temperature is also found for lipopolysaccharide using light-scattering measurements and appears to be a thermal transition, since it is also observed in differential scanning calorimetry. Cells of mutant strain CE1071 lacking outer membrane proteins b and c and concomitantly containing phospholipids in the outer leaflet of the outer membrane, adsorb phage K3 with an almost normal rate, but the shape of the Arrhenius plot differs from the curve of wild-type cells. The characteristics of the adsorption of phage K3 to these mutant cells can be mimicked in vitro by the incorporation of phospholipid into protein d/lipopolysaccharide complexes, indicating that phospholipids are part of the environment of the phage K3 receptor in cells of this mutant, but not in wild-type cells.

DESCRIPTORS: PHAGE K-3 LIPID PROTEIN LIPO POLY SACCHARIDE
CONCEPT CODES

10064 Biochemical Studies-Proteins, Peptides and Amino Acids
10066 Biochemical Studies-Lipids
10068 Biochemical Studies-Carbohydrates
10506 Biophysics-Molecular Properties and Macromolecules
30500 Morphology and Cytology of Bacteria
31000 Physiology and Biochemistry of Bacteria
32300 Microbiological Ultrastructure (1972-)
33504 Virology-Bacteriophage
10010 Comparative Biochemistry, General
10054 Biochemical Methods-Proteins, Peptides and Amino Acids
10056 Biochemical Methods-Lipids
10058 Biochemical Methods-Carbohydrates
10614 External Effects-Temperature as a Primary Variable (1971-)
10618 External Effects-Temperature as a Primary Variable-Hot (1971-)
23001 Temperature Its Measurement, Effects and Regulation-General
Measurement and Methods

31500 Genetics of Bacteria and Viruses
32000 Microbiological Apparatus, Methods and Media
BIOSYSTEMATIC CODES

02100 Bacterial Viruses (1979-80)
04810 Enterobacteriaceae (1979-)

BIOSYSTEMATIC CLASSIFICATION (SUPER TAXA)
Microorganisms
Viruses
Bacteria

14/9/13 (Item 11 from file 5)
DIALOG(R)File 5 Biosis Previews(R)
(c) 1999 BIOSIS All rights reserved

02637612 BIOSIS NO 000067025674
CHANGE IN PERMEABILITY OF LIPOSOMES CAUSED BY METHYL
MERCURY AND INORGANIC
MERCURY

AUTHOR NAKADA S. INOUE K. NOJIMA S. IMURA N.
AUTHOR ADDRESS SCH. PHARM. SCI., KITASATO UNIV., 9-1 SHIROFANE 5
CHOME
MINATO, TOKYO 108, JPN

JOURNAL CHEM-BIOL INTERACT 22 (1) 1978 15-24
FULL JOURNAL NAME Chemico-Biological Interactions
CODEN CBINA
RECORD TYPE Abstract
LANGUAGE ENGLISH

ABSTRACT: The effects of 2 mercurial compounds, methyl mercury and inorganic Hg, on animal and bacterial lipids were examined by measuring permeability change of lipid bilayer, liposome. Both decrease in the cholesterol content and increase in the content of unsaturated fatty acid moieties in the lipid bilayers augmented the susceptibility of the liposomes to the mercurial compounds. Inorganic Hg and methylmercury disrupted the lipid membrane to essentially the same extent. The influence on the permeability seems to be specific for Hg compounds. The significant increase in the permeability of some liposomal preparation noted even at the mercurial concentration of 10⁻⁷ M suggests that lipids in biomembranes may be one of the primary targets of these toxic substances.

DESCRIPTORS: ANIMAL BACTERIA LIPID
MEMBRANE CHOLESTEROL

CONCEPT CODES
02506 Cytology and Cytochemistry Animal
10508 Biophysics-Membrane Phenomena
13006 Metabolism-Lipids

13008 Metabolism-Sterols and Steroids
22501 Toxicology-General, Methods and Experimental
30500 Morphology and Cytology of Bacteria
10066 Biochemical Studies-Lipids
10067 Biochemical Studies-Sterols and Steroids
10069 Biochemical Studies-Minerals
10506 Biophysics-Molecular Properties and Macromolecules
12100 Movement (1971-)
22506 Toxicology-Environmental and Industrial Toxicology

BIOSYSTEMATIC CODES

34000 Bacteria-Unspecified (1979-)
33000 Animalia-Unspecified

BIOSYSTEMATIC CLASSIFICATION (SUPER TAXA)

Microorganisms
Bacteria
Animals

14/9/14 (Item 1 from file 144)

DIALOG(R)File 144 Pascal

(c) 1999 INIST/CNRS All rights reserved

14096535 PASCAL No 99-0290202

Monounsaturated but not polyunsaturated fatty acids are required for growth of the deep-sea bacterium *Photobacterium profundum* SS9 at high pressure and low temperature

ALLEN E E, FACCIOITTI D, BARTLETT D H

Center for Marine Biotechnology and Biomedicine, Scripps Institution of Oceanography, University of California, San Diego, La Jolla, California 92093-0202, United States; Calgene LLC, Monsanto, Davis, California 95616, United States

Journal: *Applied and environmental microbiology*, 1999, 65 (4), 1710-1720

ISSN: 0099-2240, CODEN: AEMIDF, Availability: INIST-7195

35-000083479250500

No of Refs: 61 ref

Document Type: P (Serial), A (Analytic)

Country of Publication: United States

Language: English

There is considerable evidence correlating the production of %increased% proportions of %membrane% unsaturated %fatty% %acids% (UFAs) with %bacterial% growth at low temperatures or high pressures. In order to assess the importance of UFAs to microbial growth under these conditions, the effects of conditions altering UFA levels in the psychrotolerant piezophilic deep-sea bacterium *Photobacterium profundum* SS9 were investigated. The fatty acids produced by *P. profundum* SS9 grown at various temperatures and pressures were characterized, and differences in fatty acid composition as a function of phase growth, and between inner and outer membranes, were noted. *P. profundum* SS9 was found to exhibit enhanced proportions of both monounsaturated (MUFAs) and polyunsaturated (PUFAs) fatty acids when grown at a decreased temperature or elevated pressure. Treatment of cells with cerulenin inhibited MUFA but not PUFA synthesis and led to a decreased growth rate and yield at low temperature and high pressure. In addition, oleic acid-auxotrophic mutants were isolated. One of these mutants, strain EA3, was deficient in the production of MUFAs and was both low-temperature sensitive and high-pressure sensitive in the absence of exogenous 18:1 fatty acid. Another mutant, strain EA2, produced little MUFA but elevated levels of the PUFA species eicosapentaenoic acid (EPA, 20:5n-3). This mutant grew slowly but was not low-temperature sensitive or high-pressure sensitive. Finally, reverse genetics was employed to construct a mutant unable to produce EPA. This mutant, strain EA10, was also not low-temperature sensitive or high-pressure sensitive. The significance of these results to the understanding of the role of UFAs in growth under low-temperature or high-pressure conditions is discussed.

English Descriptors: Marine environment, Ocean floors, Microorganism culture, Unsaturated fatty acid, Microorganism growth, Mutation, Low temperature, High pressure, Chemical composition, Plasma membrane, Comparative study
French Descriptors: Milieu marin, Fond marin, Culture microorganisme, Acide gras insature, Multiplication microorganisme, Mutation, Basse temperature, Haute pression, Composition chimique, Membrane plasmique, Etude comparative, *Photobacterium profundum*, Psychrotolerance

French Descriptors: Milieu marin, Fond marin, Culture microorganisme, Acide gras insature, Multiplication microorganisme, Mutation, Basse temperature, Haute pression, Composition chimique, Membrane plasmique, Etude comparative, *Photobacterium profundum*, Psychrotolerance

French Descriptors: Bacteria, Bacterie, Bacteria

French Descriptors: Milieu marin, Fond marin, Culture microorganisme, Acide gras insature, Multiplication microorganisme, Mutation, Basse temperature, Haute pression, Composition chimique, Membrane plasmique, Etude comparative, *Photobacterium profundum*, Psychrotolerance

Classification Codes: 002A05B03

Copyright (c) 1999 INIST-CNRS All rights reserved

ends

Set Items Description
1 1871321 BACTER?
2 0 MEMBRANE#
3 1452758 MEMBRANE?
4 0 S1 (10N) S2
5 26356 S1 (10N) S3
6 3058102 INCREASE? OR ENHANC?
7 607785 FLUID?
8 26248 S6 (10N) S7

S9 15 S5 (10N) S8
S10 10 RD S9 (unique items)
S11 18323 UNSATURATED (5N) FATTY (W) ACID?
S12 1620 S6 (10N) S11
S13 17 S12 AND S5
S14 14 RD S13 (unique items)
? s s12 and s6 and transform?

1620 S12

3058102 S6

600341 TRANSFORM?

S15 27 S12 AND S6 AND TRANSFORM?

? rd s27

>>>Set 27 has not yet been created

? rd s15

completed examining records

S16 17 RD S15 (unique items)

? t s16/9/1-17

16/9/1 (Item 1 from file 55)

DIALOG(R)File 55: Biosis Previews(R)

(c) 1999 BIOSIS All rights reserved

12031719 BIOSIS NO. 199900312238

%Enhancement% of propylene glycol distribution in the skin by high purity cis-unsaturated fatty acids with different alkyl chain lengths having different double bond position

AUTHOR: Taguchi Kenji(a), Fukushima Shoji, Yamaoka Yumiko, Takeuchi Yoshikazu, Suzuki Masao

AUTHOR ADDRESS: (a)Department of Pharmaceutics, Faculty of Pharmaceutical Sciences, Kobe Gakuin University, Arise 5, Japan

JOURNAL: *Biological & Pharmaceutical Bulletin*, 22 (4), p407-411, April 1999

ISSN: 0918-6158

DOCUMENT TYPE: Article

RECORD TYPE: Abstract

LANGUAGE: English

SUMMARY LANGUAGE: English

ABSTRACT: %Enhancement% of skin distribution of propylene glycol (PG)

in the skin by high purity cis-unsaturated fatty acids with different alkyl chain lengths was studied in the rat using Fourier %transform% /attenuated total reflection (FT-IR/ATR) analysis. Two fatty acids with the double bond at the DELTA9 position, palmitoleic acid (omega7, DELTA9) and oleic acid (omega9, DELTA9), %enhanced% PG flux into the dermis and %increased% the dermal steady state level of PG. In contrast myristoleic acid (omega5, DELTA9) was extremely weak in its action. A positional effect of the omega chain was observed. The rate of skin structural alteration %increased% in proportion to omega chain length. The application of three fatty acids with the double bond at the omega9 position, oleic acid (omega9, DELTA9), gondoic acid (omega9, DELTA11), erucic acid (omega9, DELTA13), %enhanced% PG distribution in the skin. While, nervonic acid (omega9, DELTA15) did not %increase% PG distribution in the skin. The relationship of the DELTA/omega ratio to parameters characterizing the action of %enhancers% (PG peak area max,

max alteration, and the slope) suggest that skin distribution %increases% as the position of the double bond is shifted toward the hydrophilic end. It is therefore likely that the ratio of the DELTA/omega chain length of the cis-%unsaturated% %fatty% %acid% determines the efficacy of these compounds as skin penetration %enhancers%. An adequate molecular volume may be required for cis-%unsaturated% %fatty% %acids% to act as %enhancers%.

REGISTRY NUMBERS: 57-55-6 PROPYLENE GLYCOL, 373-49-9

PALMITOLEIC ACID,

112-80-1 OLEIC ACID, 5561-99-9 GONDOIC ACID, 112-86-7 ERUCIC ACID,

506-37-6 NERVONIC ACID

DESCRIPTORS

MAJOR CONCEPTS: Biochemistry and Molecular Biophysics, Integumentary System (Chemical Coordination and Homeostasis)
BIOSYSTEMATIC NAMES: Muridae--Rodentia, Mammalia, Vertebrata, Chordata,

Animalia

ORGANISMS: rat (Muridae)

ORGANISMS PARTS ETC: skin--integumentary system

BIOSYSTEMATIC CLASSIFICATION (SUPER TAXA): Animals, Chordates, Mammals,

Nonhuman Mammals, Nonhuman Vertebrates, Rodents, Vertebrates

CHEMICALS & BIOCHEMICALS: erucic acid, gondoic acid, high purity cis unsaturated fatty acids, nervonic acid, oleic acid, palmitoleic acid, propylene glycol

METHODS & EQUIPMENT Fourier transform/attenuated total reflection

analysis--analytical method

CONCEPT CODES

10060 Biochemical Studies-General

18501 Integumentary System-General, Methods

BIOSYSTEMATIC CODES

86375 Muridae

*6/9/2 (Item 2 from file 55)

DIALOG(R)File 55 Biosis Previews(R)

(c) 1999 BIOSIS All rights reserved

10787242 BIOSIS NO. 199799408387

Transformation of sterols by *Mycobacterium vaccae*: Effect of

lecithin

on the permeability of cell envelopes to sterols

AUTHOR Rumijowska A, Lisowska K, Ziolkowski A, Sedlaczek L(a)

AUTHOR ADDRESS (a)Microbiol Virol Cent, Pol Acad Sci, Lodowa 106

93-232 Lodz, Poland

JOURNAL World Journal of Microbiology & Biotechnology 13 (1) p89-95 1997

ISSN 0959-3993

RECORD TYPE Abstract

LANGUAGE English

ABSTRACT An enhancement of beta-sitosterol

transformation to

androstenedione by *Mycobacterium vaccae* observed in medium containing

egg-yolk lecithin, was associated with the incorporation of a

considerable amount of lecithin into the cell envelope lipids. By GC/MS

measurements, fatty acids ranging from 14 to 22 carbon atoms were

identified in the lipids removed from the cells by organic solvents.

Octadecenoic (18:1), 2-methyl-octadecenoic (2-Me 18:1), and hexadecanoic

(16:0) acids were the major components of the lipid preparation obtained

from both the control cells, and the cells grown in lecithin-containing

medium. However, in the fatty acid pattern of the latter a distinct

increase in the C-18:1 component, concomitant with the decrease

the 2-Me 18:1 fatty acid was demonstrated. The C-16 fatty acid fraction

also showed a higher content of methyl-branched components in the control

cell preparation. The enrichment in unsaturated fatty acids

increases fluidity of lipids, whereas the decrease

methyl-branched fatty acids may affect the conformation of the surface

lipidic components, which may result in enhanced sterol

penetration

through the cell wall barrier in the presence of lecithin.

REGISTRY NUMBERS 83-46-5 BETA-SITOSTEROL 63-05-8

ANDROSTENEDIONE

26764-26-1 OCTADECENOIC ACID 27104-13-8 OCTADECENOIC

ACID 57-10-3

HEXADECANOIC ACID

DESCRIPTORS

MAJOR CONCEPTS Biochemistry and Molecular Biophysics, Endocrine

System

(Chemical Coordination and Homeostasis), Methods and Techniques,

Pharmacology, Physiology

BIOSYSTEMATIC NAMES Bacteria-General Unspecified--Eubacteria,

Bacteria,

Mycobacteriaceae--Eubacteria, Bacteria

ORGANISMS bacteria (Bacteria - General Unspecified), microorganism

(Microorganisms - Unspecified), *Mycobacterium vaccae* (Mycobacteriaceae)

BIOSYSTEMATIC CLASSIFICATION (SUPER TAXA) bacteria, eubacteria,

microorganisms

CHEMICALS & BIOCHEMICALS BETA-SITOSTEROL

ANDROSTENEDIONE

OCTADECENOIC ACID, HEXADECANOIC ACID

MISCELLANEOUS TERMS Research Article, ANALYTICAL METHOD

ANDROSTENEDIONE, BETA-SITOSTEROL, BIOBUSINESS, BIOPROCESS

ENGINEERING

CELL ENVELOPE, CELL WALL, FATTY ACIDS, GAS

CHROMATOGRAPHY/MASS

SPECTROMETRY GC/MS, HEXADECANOIC ACID, LECITHIN, LIPID

LIPIDS

MEMBRANES, OCTADECENOIC ACID, ORGANIC SOLVENTS, STEROL

PERMEABILITY

STEROLS, STRAIN-NRRL B 3805, TRANSFORMATION

2-METHYL-OCTADECENOIC ACID

CONCEPT CODES

10066 Biochemical Studies-Lipids

10067 Biochemical Studies-Sterols and Steroids

1004 Endocrine System-Adrenals

20016 Pharmacology-Endocrine System

30000 Physiology and Biochemistry of Bacteria

30000 Microbiological Apparatus, Methods and Media

30004 Food and Industrial Microbiology-Antibiotics, Biologics, Other

Agents

BIOSYSTEMATIC CODES

08881 Mycobacteriaceae (1992)

16/9/3 (Item 3 from file 55)

DIALOG(R)File 55 Biosis Previews(R)

(c) 1999 BIOSIS All rights reserved

10748580 BIOSIS NO. 199799369725

Enhancing effects of unsaturated fatty acids with

acids with

various structures on the permeation of indomethacin through rat skin

AUTHOR Morimoto Kazuhiro(a), Tojima Hideki, Haruta Tatsuo, Suzuki Masao

Kakemi Masao

AUTHOR ADDRESS (a)Dep. Pharmaceutics, Osaka Univ. Pharmaceutical Sci.

4-20-1 Nasahara, Takatsuki-City, Osaka 569, Japan

JOURNAL Journal of Pharmacy and Pharmacology 48 (11) p1133-1137 1996

ISSN 0022-3573

RECORD TYPE Abstract

LANGUAGE English

ABSTRACT Effects of straight-chain, cis-type, unsaturated fatty acids with

various structures (alkyl chain lengths, numbers of double bonds,

position of double bonds and cis- and trans-positional isomers) on the

skin permeation of indomethacin were examined by using rat skins

in-vitro. Furthermore, the disordering degrees of the intercellular lipid

domain in the stratum corneum, which were treated with preparations of

unsaturated fatty acids, were measured by the Fourier transform

infrared (FT-IR) method using excised rabbit ear skins. Unsaturated

fatty acids enhanced the permeation of

indomethacin

through rat skins. These permeation-enhancing effects by

unsaturated fatty acids were affected by

changes of

their alkyl chain length from C-14 to C-22. The lag-times on the

permeation of indomethacin were shortened by unsaturated fatty acids in

the following order: C-20 > C-18 > C-22 > C-16 > C-14. These fluxes

were increased by by unsaturated fatty acids

acids in the

following order: C-20 > C-18 > C-16 > C-14. Therefore, gondoic

acid (cis-11-eicosenoic acid, C-20H-38O-2) mostly enhanced the

skin

permeation of indomethacin. However, the enhancing effects of

unsaturated fatty acids were not affected

by their differences of position and numbers of double bonds, spectra of

the fatty acid-treated stratum corneum. Therefore, the perturbation

increase of lipid domain in the stratum corneum by these fatty

acids probably was the cause of the enhancing effects of

permeation

of indomethacin

REGISTRY NUMBERS 53-86-1 INDOMETHACIN

DESCRIPTORS

MAJOR CONCEPTS Biochemistry and Molecular Biophysics, Integumentary

System (Chemical Coordination and Homeostasis), Methods and

Techniques

Pharmacology

BIOSYSTEMATIC NAMES Muridae--Rodentia, Mammalia, Vertebrata

Chordata

Animalia

ORGANISMS rat (Muridae)

BIOSYSTEMATIC CLASSIFICATION (SUPER TAXA) animals, chordates

mammals,

nonhuman mammals, nonhuman vertebrates, rodents, vertebrates

CHEMICALS & BIOCHEMICALS INDOMETHACIN

MISCELLANEOUS TERMS Research Article, ANALYTICAL METHOD

FOURIER

TRANSFORMATION, IR, INDOMETHACIN, INTEGUMENTARY SYSTEM

LIPID DOMAIN

PERMEATION, PHARMACODYNAMICS, PHARMACOLOGY, SKIN

STRATUM CORNEUM

TRANSDERMAL DRUG DELIVERY, UNSATURATED FATTY ACIDS

CONCEPT CODES

10060 Biochemical Studies-General

10066 Biochemical Studies-Lipids

10506 Biophysics-Molecular Properties and Macromolecules

18501 Integumentary System-General, Methods

18504 Integumentary System-Physiology and Biochemistry

22002 Pharmacology-General

22100 Routes of Immunization, Infection and Therapy

BIOSYSTEMATIC CODES

86375 Muridae

16/9/4 (Item 4 from file 55)

DIALOG(R)File 55 Biosis Previews(R)

(c) 1999 BIOSIS All rights reserved

10153489 BIOSIS NO. 199698608407

Apparent pK-a of the fatty acids within ordered mixtures of model human

stratum corneum lipids.

AUTHOR Lieckfeldt Renate, Villalain Jose, Gomez-Fernandez Juan-Carlos, Lee

Geoffrey(a)

AUTHOR ADDRESS (a)Lehrstuhl Pharmazeutische Technologie, Univ
Erlangen-Nuernberg, Cauerstr 4, 91058 Erlangen, Germany

JOURNAL Pharmaceutical Research (New York) 12 (11) p1614-1617 1995

ISSN 0724-8741

DOCUMENT TYPE Article

RECORD TYPE Abstract

LANGUAGE English

ABSTRACT Purpose The apparent pK-a of the fatty acids within hydrated (30% w/w) model human stratum corneum (SC) lipid mixtures should be measured. Methods The degree of ionisation of the fatty acids was calculated as a function of pH using Fourier transform infra-red spectroscopy. The relative intensity of the stretching bands of the unionized and ionized carboxylic groups was determined and fitted to the relevant expression for ionic equilibrium of a monoprotic acid. The pK-a was then calculated for the increasing proportion of

%unsaturated%

%fatty% in the lipid mixture. Results. Values for pK-a in

the range 6.2-7.3 were found, %increasing% with greater proportion of oleic acid. These are some 1.5-3 pH units higher than the pK-as of fatty acids in molecular solution. Conclusions. As there exists a pH-gradient across the SC, the degree of ionisation will also vary. In the innermost SC layers, a pH of 7 will produce 90% ionization of the fatty acids and head-group repulsion will be great. At the SC surface, the pH of 5 will cause almost minimal head-group repulsion, tending to %increase% crystallinity and promote a bilayer structure.

DESCRIPTORS

MAJOR CONCEPTS Biochemistry and Molecular Biophysics, Integumentary System (Chemical Coordination and Homeostasis), Mathematical Biology (Computational Biology), Membranes (Cell Biology)

BIOSYSTEMATIC NAMES Hominidae--Primates, Mammalia, Vertebrata, Chordata

Animalia

ORGANISMS Hominidae (Hominidae)

BIOSYSTEMATIC CLASSIFICATION (SUPER TAXA) animals, chordates, humans

mammals, primates, vertebrates

MISCELLANEOUS TERMS MATHEMATICAL MODEL

CONCEPT CODES

04:00 Mathematical Biology and Statistical Methods

10066 Biochemical Studies-Lipids

10508 Biophysics-Membrane Phenomena

18504 Integumentary System-Physiology and Biochemistry

BIOSYSTEMATIC CODES

86215 Hominidae

16/9/5 (Item 5 from file 55)

DIALOG(R)File 55 Biosis Previews(R)

(c) 1999 BIOSIS. All rights reserved

09872050 BIOSIS NO 199598326968

Time-course changes in content and fatty acid composition of phosphatidic acid from rat thymocytes during concanavalin A stimulation.

AUTHOR El Bawab Samer, Macovschi Olga(a), Lagarde Michel, Prigent Anne-France

AUTHOR ADDRESS (a)INSERM Unite 352 Lab. Chimie Biol. INSA-Lyon 20 Ave

Albert Einstein 69621 Villeurbanne, France

JOURNAL Biochemical Journal 308 (1) p113-118 1995

ISSN 0264-6021

DOCUMENT TYPE Article

RECORD TYPE Abstract

LANGUAGE English

ABSTRACT Several studies have shown the potential role of phosphatidic acid (PA) as a second messenger in different cell types. Thus, PA has been shown to mimic physiological agonists leading to various cellular responses, such as neurotransmitter and hormone release, cell proliferation by modulating DNA or RNA synthesis, the expression of several proto-oncogenes and growth factors, and the stimulation of enzyme activities such as phospholipase C (PLC), protein kinases and cyclic AMP (cAMP) phosphodiesterase. Stimulation of (3H) arachidonate-labelled rat thymocytes with the mitogen lectin concanavalin A (con A) resulted in %enhanced% production of radiolabelled PA after only 5 min of activation. The radiolabelled PA %increase% corresponded to a real %increase% in PA mass as determined by GLC quantification of its fatty acid content. In the presence of ethanol (0.5%), formation of phosphatidylethanol was not observed after 5 min of con A activation. Pretreatment of cells with R 59022 (10 µM), a diacylglycerol (DAG) kinase inhibitor, showed an inhibition in the formation of radiolabelled PA and in PA mass. These results suggest that the PLC-DAG kinase may be the pathway for PA synthesis in the first minutes of mitogenic thymocyte activation. A detailed analysis of the fatty acid composition showed that the relative amount of %unsaturated% %fatty% %acids% was %increased% in PA from stimulated cells concomitantly with a

decrease

in saturated ones, in particular, arachidonic acid was %increased% approximately 2-fold only 2 min after con A addition whereas palmitic acid was decreased for the whole period investigated (20 min). These changes favour the hydrolysis of phosphoinositides rather than phosphatidylcholines by PLC. As PA remains a minor phospholipid, these changes are unlikely to affect cell membrane fluidity, but PA being now well recognized as a potential second messenger, its %increased% content as well as its %increased% unsaturation in the fatty acyl moiety might modulate several signalling pathways or the activity of enzymes such as cyclic nucleotide phosphodiesterase, controlling in this way the cellular level of cAMP, a negative regulator of blastocyst transformation.

REGISTRY NUMBERS 11028-71-0 CONCAVALIN A, 60-92-4 CYCLIC AMP,

9040-59-9Q CYCLIC NUCLEOTIDE PHOSPHODIESTERASE, 50812-31-2Q

CYCLIC

NUCLEOTIDE PHOSPHODIESTERASE, 506-32-1 ARACHIDONIC ACID

DESCRIPTORS

MAJOR CONCEPTS Cell Biology, Endocrine System (Chemical Coordination and

Homeostasis), Enzymology (Biochemistry and Molecular Biophysics), Metabolism

BIOSYSTEMATIC NAMES Muridae--Rodentia, Mammalia, Vertebrata, Chordata

Animalia

ORGANISMS Muridae (Muridae)

BIOSYSTEMATIC CLASSIFICATION (SUPER TAXA) animals, chordates, mammals,

nonhuman vertebrates, nonhuman mammals, rodents, vertebrates

CHEMICALS & BIOCHEMICALS CONCAVALIN A, CYCLIC AMP, CYCLIC NUCLEOTIDE

PHOSPHODIESTERASE, ARACHIDONIC ACID

MISCELLANEOUS TERMS ARACHIDONIC ACID, BLASTIC

%TRANSFORMATION%

CYCLIC AMP, CYCLIC NUCLEOTIDE PHOSPHODIESTERASE

DIACYLGLYCEROL

KINETICS, MITOGENIC ACTIVATION, SECOND MESSENGER

CONCEPT CODES

02506 Cytology and Cytochemistry-Animal

10808 Enzymes-Physiological Studies

13006 Metabolism-Lipids

17016 Endocrine System-Thymus

10062 Biochemical Studies-Nucleic Acids, Purines and Pyrimidines

10064 Biochemical Studies-Proteins, Peptides and Amino Acids

10066 Biochemical Studies-Lipids

BIOSYSTEMATIC CODES

86375 Muridae

16/9/6 (Item 6 from file 55)

DIALOG(R)File 55 Biosis Previews(R)

(c) 1999 BIOSIS. All rights reserved

09232737 BIOSIS NO 199497241107

Dexamethasone-dependent modulation of cholesterol levels in human lymphoblastoid B cell line through sphingosine production.

AUTHOR Miccheli Alfredo, Tomassini Alberta, Ficciolini Rita, Di Cocco Maria E, Piccolella Enza, Manetti Cesare, Conti Filippo(a)

AUTHOR ADDRESS (a)Dep. Chemistry, Univ. "La Sapienza", P.le Aldo Moro 5, 00185 Rome, Italy

JOURNAL Biochimica et Biophysica Acta 1221 (2) p171-177 1994

ISSN 0006-3002

DOCUMENT TYPE Article

RECORD TYPE Abstract

LANGUAGE English

ABSTRACT The effect of dexamethasone on lipid composition of Epstein-Barr virus %transformed% human B lymphocytes has been investigated by ³¹P- and ¹H-NMR spectroscopy and compared to the effects due to exogenous

sphingosine treatment. Furthermore, the effects of dexamethasone and sphingosine on membrane structure was evaluated by fluorimetry. No significant changes were evidenced in phospholipid composition and in the ratio of %unsaturated% to total %fatty% %acid% chains. A

significant %increase% in total cholesterol levels was evident at 30 min incubation with dexamethasone or sphingosine, a parallel %increase% in DPH polarization at 30 min was also demonstrated. TMA-DPH intensity measurements suggest a slowing of vesicular intracellular traffic due to the treatment. The results suggest a dexamethasone- and sphingosine-dependent inhibition of intracellular cholesterol transport.

REGISTRY NUMBERS 50-02-2 DEXAMETHASONE, 57-88-5

CHOLESTEROL, 123-78-4

SPHINGOSINE, 1720-32-7, DIPHENYLHEXATRIENE, 7723-14-0, PHOSPHORUS-31

DESCRIPTORS

MAJOR CONCEPTS Blood and Lymphatics (Transport and Circulation)

Hematology (Human Medicine, Medical Sciences), Metabolism, Oncology (Human Medicine, Medical Sciences), Pharmacology
 BIOSYSTEMATIC NAMES: Herpesviridae--Viruses; Hominidae--Primates, Mammalia, Vertebrata, Chordata, Animalia; Papovaviridae--Viruses
 ORGANISMS: Epstein-Barr virus (Herpesviridae), Hominidae (Hominidae), Papovaviridae (Papovaviridae)
 BIOSYSTEMATIC CLASSIFICATION (SUPER TAXA): animals; chordates, humans, mammals, microorganisms, primates; vertebrates, viruses
 CHEMICALS & BIOCHEMICALS: DEXAMETHASONE, CHOLESTEROL, SPHINGOSINE, DIPHENYLHEXATRIENE, PHOSPHORUS-31
 MISCELLANEOUS TERMS: ANALYTICAL METHOD, DEXAMETHASONE, DIPHENYLHEXATRIENE POLARIZATION, HORMONE-DRUG, PHOSPHORUS-31 NMR, PROTON NMR
 CONCEPT CODES
 13004 Metabolism-Carbohydrates
 13006 Metabolism-Lipids
 13008 Metabolism-Sterols and Steroids
 15004 Blood, Blood-Forming Organs and Body Fluids-Blood Cell Studies
 15006 Blood, Blood-Forming Organs and Body Fluids-Blood, Lymphatic and Reticuloendothelial Pathologies
 15008 Blood, Blood-Forming Organs and Body Fluids-Lymphatic Tissue and Reticuloendothelial System
 22003 Pharmacology-Drug Metabolism, Metabolic Stimulators
 22016 Pharmacology-Endocrine System
 24005 Neoplasms and Neoplastic Agents-Neoplastic Cell Lines
 24006 Neoplasms and Neoplastic Agents-Biochemistry
 24010 Neoplasms and Neoplastic Agents-Blood and Reticuloendothelial Neoplasms
 02508 Cytology and Cytochemistry-Human
 06504 Radiation-Radiation and Isotope Techniques
 10056 Biochemical Methods-Lipids
 10057 Biochemical Methods-Sterols and Steroids
 10058 Biochemical Methods-Carbohydrates
 10066 Biochemical Studies-Lipids
 10067 Biochemical Studies-Sterols and Steroids
 10068 Biochemical Studies-Carbohydrates
 10069 Biochemical Studies-Minerals
 10504 Biophysics-General Biophysical Techniques
 12100 Movement (1971-)
 17004 Endocrine System-Adrenals
 22005 Pharmacology-Clinical Pharmacology (1972-)
 24007 Neoplasms and Neoplastic Agents-Carcinogens and Carcinogenesis
 32500 Tissue Culture: Apparatus, Methods and Media
 33506 Virology-Animal Host Viruses
 35005 Medical and Clinical Microbiology-Virology
 BIOSYSTEMATIC CODES:
 02616 Papovaviridae (1993-)
 96215 Hominidae

16/9/7 (Item 1 from file 5)
 DIALOG(R)File 5 Biosis Previews(R)
 (c) 1999 BIOSIS. All rts. reserv

05214557 BIOSIS NO. 000082055179
 THE COMPOSITION OF FATTY-ACIDS IN THE MITOCHONDRIAL FRACTION OF THE LIVER AND BRAIN IN MICE WITH TRANSPLANTED LYMPHATIC LEUKEMIA P-388

AUTHOR: MADEJ J A. ZYMCZAK J
 AUTHOR ADDRESS: UL LISKEGO 4/5, 50-345 WROCLAW.

JOURNAL: MED WETER 41 (11) 1985 (RECD 1986) 691-694.
 FULL JOURNAL NAME: Medycyna Weterynaryjna
 CODEN: MDWTA
 RECORD TYPE: Abstract
 LANGUAGE: POLISH

ABSTRACT: The composition of fatty acids by means of gas chromatography of

methyl esters was determined in the mitochondrial fraction of the liver and encephalon of mice hybrids BDF1, which had been given the cells of lymphatic leukemia P 388. The mice were sacrificed after 5 and 11 days since inoculation. An % increase of acids C16 = and C20 was observed in the liver along with the development of leukemia and a drop of the level of C18 = 3 and C20 = 3. In the brain during the growth of tumor an % increase of acids C17, C18 = 2, and C18 = 3 and a decrease of C14, C20 = and C20 = 4 were noted. In the mitochondrial fraction of the liver of sick mice there was observed % increased amounts of % unsaturated % fatty % acids % compared with saturated ones and in the encephalon these relations were adverse. The authors suggest taking part of fatty acids in the destabilisation of mitochondrial membranes of lymphocytes and their % transformation % into leukemic ones.

DESCRIPTORS: TUMOR GROWTH
 CONCEPT CODES

02506 Cytology and Cytochemistry-Animal
 10066 Biochemical Studies-Lipids
 11108 Anatomy and Histology, General and Comparative-Microscopic and Ultramicroscopic Anatomy
 14004 Digestive System-Physiology and Biochemistry
 15006 Blood, Blood-Forming Organs and Body Fluids-Blood, Lymphatic and Reticuloendothelial Pathologies
 15008 Blood, Blood-Forming Organs and Body Fluids-Lymphatic Tissue and Reticuloendothelial System
 20504 Nervous System-Physiology and Biochemistry
 24005 Neoplasms and Neoplastic Agents-Neoplastic Cell Lines
 24006 Neoplasms and Neoplastic Agents-Biochemistry
 24010 Neoplasms and Neoplastic Agents-Blood and Reticuloendothelial Neoplasms
 01058 Microscopy Techniques-Electron Microscopy
 10056 Biochemical Methods-Lipids
 14001 Digestive System-General, Methods
 20501 Nervous System-General, Methods
 BIOSYSTEMATIC CODES:
 86375 Muridae
 BIOSYSTEMATIC CLASSIFICATION (SUPER TAXA):
 Animals
 Chordates
 Vertebrates
 Nonhuman Vertebrates
 Mammals
 Nonhuman Mammals
 Rodents

16/9/8 (Item 2 from file 5)
 DIALOG(R)File 5 Biosis Previews(R)
 (c) 1999 BIOSIS. All rts. reserv

03903666 BIOSIS NO. 000075081739
 INCORPORATION OF EXOGENOUS FATTY-ACIDS INTO PHOSPHO LIPIDS BY CULTURED HAMSTER FIBROBLASTS EFFECT OF SV-40 % TRANSFORMATION %

AUTHOR: MAZIERE C, MAZIERE J-C, MORA L, POLONOVSKI J
 AUTHOR ADDRESS: LAB DE CHIMIE BIOL., ERA 481 DU CNRS, CHU SAINT-ANTOINE,
 27 RUE DE CHALIGNY, 75012 PARIS, FR

JOURNAL: BIOCHIM BIOPHYS ACTA 712 (3) 1982 712-715
 FULL JOURNAL NAME: Biochimica et Biophysica Acta
 CODEN: BBACA
 RECORD TYPE: Abstract
 LANGUAGE: ENGLISH

ABSTRACT: In situ incorporation of 2 saturated (palmitic, 16:0, stearic 18:0) and 3 unsaturated fatty acids (oleic, 18:1, linoleic, 18:2, arachidonic, 20:4) into the 4 major phospholipids, sphingomyelin, PC [phosphatidylcholine], PI [phosphatidylinositol] and PE [phosphatidylethanolamine], was followed. SV40 % transformed % hamster fibroblast cells incorporated unsaturated fatty acids more rapidly, whereas no significant differences were found concerning saturated fatty acids. In vitro determination of phospholipid acylation showed that incorporation of CoA-activated forms of 2 saturated fatty acids (16:0 and 18:0) and 1 % unsaturated % fatty % acids % (18:1 and 18:2) into phospholipids was % increased % in % transformed % cells. Comparison of results obtained in situ and in vitro strongly suggests that incorporation of fatty acids into phospholipids in cultured cells is not limited by acyltransferase activities.

DESCRIPTORS: COENZYME A ACYL TRANSFERASE SPHINGOMYELIN PHOSPHATIDYL CHOLINE PHOSPHATIDYL INOSITOL PHOSPHATIDYL ETHANOLAMINE PALMITIC-ACID STEARIC-ACID OLEIC-ACID LINOLEIC-ACID ARACHIDONIC-ACID
 CONCEPT CODES

02506 Cytology and Cytochemistry-Animal
 10508 Biophysics-Membrane Phenomena
 10808 Enzymes-Physiological Studies
 13006 Metabolism-Lipids
 24004 Neoplasms and Neoplastic Agents-Pathology, Clinical Aspects Systemic Effects
 24006 Neoplasms and Neoplastic Agents-Biochemistry
 24007 Neoplasms and Neoplastic Agents-Carcinogens and Carcinogenesis
 10064 Biochemical Studies-Proteins, Peptides and Amino Acids
 10066 Biochemical Studies-Lipids
 10802 Enzymes-General and Comparative Studies, Coenzymes
 10806 Enzymes-Chemical and Physical
 18001 Bones, Joints, Fasciae, Connective and Adipose Tissue-General Methods
 32600 In Vitro Studies, Cellular and Subcellular
 BIOSYSTEMATIC CODES:
 02226 Papovaviridae (1979-)
 86310 Cricetidae

BIOSYSTEMATIC CLASSIFICATION (SUPER TAXA)

Microorganisms
Viruses
Animals
Chordates
Vertebrates
Nonhuman Vertebrates
Mammals
Nonhuman Mammals
Rodents

16/9/9 (Item 3 from file 5)
DIALOG(R)File 5 Biosis Previews(R)
(c) 1999 BIOSIS All rights reserved

03654303 BIOSIS NO. 000074069880
DIFFERENTIAL EFFECT OF IMIDAZOLE ANTIBIOTICS ON UNTRANSFORMED
AND VIRUS
%%TRANSFORMED%% RAT CELL LINES

AUTHOR KUWANO M. AKIYAMA S-I. KANEKO M. IKEZAKI K. TAKAKI R.
KIMURA G.
AUTHOR ADDRESS DEPARTMENT OF BIOCHEMISTRY AND INTERNAL
MEDICINE, OITA
MEDICAL SCHOOL HAZAMA-CHO, OITA 879-56, JPN

JOURNAL CANCER RES 42 (1) 1981 (RECD 1982) 280-284
FULL JOURNAL NAME Cancer Research
CODEN CNREA
RECORD TYPE Abstract
LANGUAGE ENGLISH

ABSTRACT The imidazole antimycotics clotrimazole and miconazole were
tested on untransformed rat [embryo] cell line 31-B clone 1-6 (3Y1) and 6
%%transformed%% cell lines which were independently isolated from 3Y1
or 3Y1-B clone 1 after infection with adenovirus 12 (AD-12) or with SV40.
to determine their sensitivities to these drugs. The relative plating
efficiency of 3 cell lines (T3 W4 and W5) %%transformed%% with AD-12
was reduced to 10-1 of the initial value by clotrimazole (2-4 mu g/ml)
whereas that of the parental cell line 3Y1 was reduced to 10-1 of the
initial value by clotrimazole (20-25 mu g/ml). By contrast the
differential effect of miconazole on 3Y1 and AD-12 %%transformed%% cell
lines was a factor of 2. The sensitivity of the SV40-%%transformed%%
cell lines to these drugs was between the untransformed 3Y1 and the
AD-12-%%transformed%% cell lines. The cellular sensitivity of
untransformed 3Y1 cells to clotrimazole was significantly %%enhanced%%
when exposed to various doses of the %%unsaturated%% %%fatty%%
%%acid%% inoleic acid. The untransformed and %%transformed%%
cell
lines showed sensitivities similar to the cytotoxic activity of
steroid-binding antimycotics, amphotericin B and filipin. [
%%Transformed%% cell lines No. 9, C-65 and C-66 were also used.]

DESCRIPTORS EMBRYO 3Y-1-B CELLS T-3 CELLS NO 9 CELLS W-4 CELLS
W-5 CELLS
C-65 CELLS C-66 CELLS ADENOVIRUS 12 SV-40 CLOTRIMAZOLE
AMPHOTERICIN B
FILIPIN ANTINEOPLASTIC-DRUG
CONCEPT CODES
22003 Pharmacology-Drug Metabolism, Metabolic Stimulators
24008 Neoplasms and Neoplastic Agents-Therapeutic Agents, Therapy
36502 Chemotherapy-General, Methods, Metabolism
02506 Cytology and Cytochemistry-Animal
10010 Comparative Biochemistry-General
10060 Biochemical Studies-General
12512 Pathology-General and Miscellaneous-Therapy (1971-)
24005 Neoplasms and Neoplastic Agents-Neoplastic Cell Lines
24007 Neoplasms and Neoplastic Agents-Carcinogens and Carcinogenesis
25504 Developmental Biology-Embryology-Experimental
33506 Virology-Animal Host Viruses
36006 Medical and Clinical Microbiology-Virology

BIOSYSTEMATIC CODES

02210 Adenoviridae (1979-)
02226 Papovaviridae (1979-)
86375 Muridae

BIOSYSTEMATIC CLASSIFICATION (SUPER TAXA)

Microorganisms
Viruses
Animals
Chordates
Vertebrates
Nonhuman Vertebrates
Mammals
Nonhuman Mammals
Rodents

16/9/10 (Item 4 from file 5)
DIALOG(R)File 5 Biosis Previews(R)
(c) 1999 BIOSIS All rights reserved

03294796 BIOSIS NO. 000072022899

FATTY-ACID CONTENT AND COMPOSITION OF PHOSPHO LIPIDS FROM THE ENDOPLASMIC RETICULUM IN DEVELOPING RAT LIVER

AUTHOR DHAMI M S I. DE LA IGLESIA F A. FEUER G.
AUTHOR ADDRESS DEP. CLIN. BIOCHEM., UNIV. TORONTO, TORONTO
M5G 1L5,
ONTARIO, CANADA

JOURNAL RES. COMMUN. CHEM. PATHOL. PHARMACOL. 32 (1) 1981 99-112
FULL JOURNAL NAME Research Communications in Chemical Pathology and
Pharmacology
CODEN RCOCB
RECORD TYPE Abstract
LANGUAGE ENGLISH

ABSTRACT Development of enzyme functions of the endoplasmic reticulum in
the neonatal rat liver is associated with formation of membrane-bound
phospholipids. Distribution of fatty acid moieties was examined in
isolated endoplasmic reticulum membranes of liver after birth and
postnatal development. The content of microsomal phosphatidylcholine,
phosphatidylethanolamine, sphingomyelin and lysophosphatidylcholine was
raised throughout the postnatal to the adult animal. Acyl components were
also %%increased%%, especially %%unsaturated%% %%fatty%%
%%acids%% such as arachidonic, docosapentaenoic and
docosahexaenoic
acids. Saturated components such as palmitic and stearic acids were
reduced during maturation. Ontogenesis of the hepatic endoplasmic
reticulum correlated with selectively %%increased%% production of
discrete phospholipid moieties containing greater amounts of
%%unsaturated%% %%fatty%% %%acids%%. During
development
phospholipids are required for structural membrane assembly. They also
display a determining role in the organization of enzyme activity for
xenobiotic biotransformation.

DESCRIPTORS XENOBIOTIC BIO %%TRANSFORMATION%% ENZYME
ACTIVITY
PHOSPHATIDYL CHOLINE PHOSPHATIDYL ETHANOLAMINE
SPHINGOMYELIN LYSO
PHOSPHATIDYL CHOLINE DOCOSA PENTAENOIC-ACID
ARACHIDONIC-ACID DOCOSA
HEXAENOIC-ACID PALMITIC-ACID STEARIC-ACID MEMBRANE ASSEMBLY
CONCEPT CODES

02506 Cytology and Cytochemistry-Animal
10508 Biophysics-Membrane Phenomena
10808 Enzymes-Physiological Studies
13002 Metabolism-General Metabolism, Metabolic Pathways
13006 Metabolism-Lipids
14004 Digestive System-Physiology and Biochemistry
25508 Developmental Biology-Embryology-Morphogenesis, General
10060 Biochemical Studies-General
10064 Biochemical Studies-Proteins, Peptides and Amino Acids
10066 Biochemical Studies-Lipids
25000 Pediatrics
BIOSYSTEMATIC CODES

BIOSYSTEMATIC CLASSIFICATION (SUPER TAXA)

Animals
Chordates
Vertebrates
Nonhuman Vertebrates
Mammals
Nonhuman Mammals
Rodents

16/9/11 (Item 5 from file 5)
DIALOG(R)File 5 Biosis Previews(R)
(c) 1999 BIOSIS All rights reserved

02711630 BIOSIS NO. 000068022219
EFFECTS OF ARACHIDONIC-ACID AND OTHER UNSATURATED
FATTY-ACIDS ON
MITOGENESIS IN HUMAN LYMPHOCYTES

AUTHOR KELLY J.P. PARKER C.W.
AUTHOR ADDRESS DIV. ALLERGY/IMMUNOL. DEP. INTERN. MED. WASH.
UNIV. SCH.
MED., PULLMAN, WASH., USA

JOURNAL J. IMMUNOL. 122 (4) 1979 1556-1562
FULL JOURNAL NAME Journal of Immunology
CODEN JOIMA
RECORD TYPE Abstract
LANGUAGE ENGLISH

ABSTRACT The effect of fatty acids and other lipids on mitogenic responses
in cultured human peripheral blood lymphocytes was studied. Several-fold
%%enhancement%% of 3H-thymidine incorporation was observed at
0.1-5.0
mu g/ml concentrations of arachidonic acid. Other %%unsaturated%%
%%fatty%% %%acids%% produced less marked changes.

%%increased%%

responsiveness was demonstrable in a variety of media including RPMI 1640 supplemented with 10% fetal calf serum. Changes were observed in uridine incorporation, total cell number, and blast % transformation %, indicating that the effect was not on thymidine transport or pool size per se. Arachidonic acid failed to affect PHA [phytohemagglutinin] binding, indicating that the lectin-cell interaction was not being altered. Higher concentrations of fatty acids were inhibitory.

DESCRIPTORS PHYTO HEM AGGLUTININ LIPIDS

CONCEPT CODES

10066 Biochemical Studies-Lipids
15004 Blood, Blood-Forming Organs and Body Fluids-Blood Cell Studies
15008 Blood, Blood-Forming Organs and Body Fluids-Lymphatic Tissue and Reticuloendothelial System
34508 Immunology and Immunochimistry-Immunopathology, Tissue Immunology
06504 Radiation-Radiation and Isotope Techniques
10062 Biochemical Studies-Nucleic Acids, Purines and Pyrimidines
10064 Biochemical Studies-Proteins, Peptides and Amino Acids
13014 Metabolism-Nucleic Acids, Purines and Pyrimidines
22008 Pharmacology-Blood and Hematopoietic Agents
22018 Pharmacology-Immunological Processes and Allergy
32500 Tissue Culture, Apparatus, Methods and Media
51522 Plant Physiology, Biochemistry and Biophysics-Chemical Constituents
54000 Pharmacognosy and Pharmaceutical Botany

BIOSYSTEMATIC CODES

11000 Plantae-Unspecified
86215 Hominidae

BIOSYSTEMATIC CLASSIFICATION (SUPER TAXA)

Plants
Animals
Chordates
Vertebrates
Mammals
Primates
Humans

16/9/12 (Item 6 from file 5)

DIALOG(R)File 5 Biosis Previews(R)

(c) 1999 BIOSIS All rights reserved

01485448 BIOSIS NO 000066068001

EFFECT OF A SINGLE ETHANOL INJECTION ON LIPID AND LIPO PROTEIN SYNTHESIS IN RAT LIVER

AUTHOR TITOV V N, PITSIN D G

AUTHOR ADDRESS ALL-UNION CARDIOL SCI CENT ACAD MED SCI USSR
MOSCOW USSR

JOURNAL BIOKHIMIYA 43 (1) 1978 83-88

FULL JOURNAL NAME Biokhimiya

CODEN BIOHA

RECORD TYPE Abstract

LANGUAGE RUSSIAN

ABSTRACT A single ethanol injection resulted in an % increase % of mono-, di- and triglyceride synthesis in rat liver, as well as the synthesis of apoprotein of very low density lipoproteins, the formation and secretion. Different uptake of pools of 14C-acetyl CoA, synthesized from injected 14C-acetate, and 3H-acetyl CoA, synthesized through metabolic pathways of 3H-leucine, indicates the compartmentalization of acetyl CoA in the synthesis of saturated and unsaturated fatty acids. 3H-acetyl CoA is more intensively used in the synthesis of % unsaturated % % fatty % % acids % than 14C-acetyl CoA synthesized from acetate. Ethanol % increases % the uptake of acetyl CoA synthesized from acetate, for the synthesis of all the lipids, probably at the expense of the % increased % synthesis of endogenous acetate or the metabolic % transformation % of ethanol.

DESCRIPTORS ACETYL COENZYME A

CONCEPT CODES

13006 Metabolism-Lipids
13012 Metabolism-Proteins, Peptides and Amino Acids
14004 Digestive System-Physiology and Biochemistry
22501 Toxicology-General, Methods and Experimental
06504 Radiation-Radiation and Isotope Techniques
10063 Biochemical Studies-General
10064 Biochemical Studies-Proteins, Peptides and Amino Acids
10066 Biochemical Studies-Lipids
10802 Enzymes-General and Comparative Studies, Coenzymes

BIOSYSTEMATIC CODES

86375 Muridae

BIOSYSTEMATIC CLASSIFICATION (SUPER TAXA)

Animals
Chordates
Vertebrates

Nonhuman Vertebrates

Mammals

Nonhuman Mammals

Rodents

16/9/13 (Item 7 from file 5)

DIALOG(R)File 5 Biosis Previews(R)

(c) 1999 BIOSIS All rights reserved

02181280 BIOSIS NO 000064023794

THE EFFECTS OF BIOTIN AND FATTY-ACIDS ON SV-3T3 CELL GROWTH ON THE PRESENCE OF NORMAL CALF SERUM

AUTHOR MESSMER T O, YOUNG D V

JOURNAL J CELL PHYSIOL 90 (2) 1977 265-270

FULL JOURNAL NAME Journal of Cellular Physiology

CODEN JCLLA

RECORD TYPE Abstract

ABSTRACT The growth of [mouse SV-40 % transformed % fibroblast] SV3T3

cells in medium containing a low concentration (0.20% vol/vol) of normal calf serum is % enhanced % by the addition of biotin or certain % unsaturated % fatty % acids %. The biotin effect on the final viable cell density is 5- to 10-fold over the control and is extremely potent, exerting a saturating response at a concentration of approximately 200 pg/ml. The optimal growth response observed with fatty acids is 5-fold over the control and requires the combination of nervonic acid, palmitoleic acid and arachidonic acid. The fatty acids are probably not replacing the function of biotin since these 2 substances are additive in their growth effects.

DESCRIPTORS MOUSE SV-40 PAPOVAVIRUS % TRANSFORMED %

FIBROBLASTS

NERVONIC-ACID PALMITOLEIC-ACID ARACHIDONIC-ACID

CONCEPT CODES

02506 Cytology and Cytochemistry-Animal
13210 Nutrition-Water-Soluble Vitamins
13222 Nutrition-Lipids (1972-)
24005 Neoplasms and Neoplastic Agents-Neoplastic Cell Lines
24006 Neoplasms and Neoplastic Agents-Biochemistry
32500 Tissue Culture, Apparatus, Methods and Media
10010 Comparative Biochemistry, General
10063 Biochemical Studies-Vitamins
10066 Biochemical Studies-Lipids
13006 Metabolism-Lipids
13018 Metabolism-Water-Soluble Vitamins
32600 In Vitro Studies, Cellular and Subcellular

BIOSYSTEMATIC CODES

03200 Animal Viruses (1969-78)

85715 Bowidae

86375 Muridae

BIOSYSTEMATIC CLASSIFICATION (SUPER TAXA)

Microorganisms
Viruses
Animals
Chordates
Vertebrates
Nonhuman Vertebrates
Mammals
Nonhuman Mammals
Artiodactyls
Rodents

16/9/14 (Item 1 from file 144)

DIALOG(R)File 144 Pascal

(c) 1999 INIST/CNRS All rights reserved

13718095 PASCAL No. 98-0409378

Skin penetration % enhancing % action of cis- % unsaturated % % fatty % % acids % with omega -9 and omega -12 chain lengths

TAKEUCHI Y, YAMAOKA Y, FUKUSHIMA S, MIYAWAKI K, TAGUCHI K,

YASUKAWA H,

KISHIMOTO S, SUZUKI M

Department of Pharmaceutics, Faculty of Pharmaceutical Sciences, Kobe Gakuin University, Arise Igawadani-cho, Nishi-ku, Kobe 651-21, Japan
Oleochemical Research Laboratory, NOF corporation, 1-56 Oonama-cho, Amagasaki 660, Japan

Journal Biological & pharmaceutical bulletin 1998 21 (5) 484-491

ISSN 0918-6158 Availability INIST-18096, 354000072288780120

No of Refs 16 ref

Document Type: P (Serial), A (Analytic)

Country of Publication: Japan

Language: English

The skin penetrative action of high purity cis- omega -12-octadecenoic acid (petroselinic acid, HP-PSA) on rat skin was compared with that of high purity cis- omega -9-octadecenoic acid (oleic acid, HP-OA) following

treatment of rat intact skin surface with either 0.05 M HP-PSA or HP-OA in propylene glycol (PG), using Fourier transform infrared (FT-IR/ATR) analysis. Both HP-PSA and HP-OA disordered the lipid structures of the stratum corneum region to a similar extent. Removal of the extractable lipids of the stratum corneum region was marked with HP-PSA/PG but was very slight upon HP-OA/PG treatment. The spectra of the amide II region which originated from proteins suggests that HP-PSA/PG more rapidly disordered the protein structures of both the stratum corneum and the dermis than HP-OA/PG. However, the extent of disordering of the protein structures was presumed to be similar between these two skin penetration enhancers at the maximum level. Enhancement of PG flux in the dermis showed strong positive correlation with the degree of dermis disordering action of HP-PSA/PG and HP-OA/PG. These results demonstrate that HP-PSA, which has a double bond at an even numbered position (ω -12), more rapidly affects the perturbation of the structures of both the stratum corneum and the dermis than HP-OA, which has the double bond at an odd numbered position (ω -9). Differences in the physicochemical properties of HP-PSA and HP-OA which originate from differences in the double bond position most likely determine the efficacy of these compounds as skin penetration enhancers.

English Descriptors: Absorption enhancer. Skin.

Unsaturated.

fatty acid. Cis stereoisomer, Oleic acid, Stratum corneum.

Lipids, Protein, Derm, Position isomer.

French Descriptors: Promoteur absorption, Peau, Acide gras insaturé.

Stereoisomère cis, Oléique acide, Couche cornée, Lipide, Protéine, Dérme, Isomère position, Pétroselinique acide.

Classification Codes: 002B02A03

Copyright (c) 1998 INIST-CNRS. All rights reserved.

16/9/15 (Item 2 from file 144)

DIALOG(R) File 144 Pascal

(c) 1999 INIST/CNRS. All rights reserved.

13174679 PASCAL No. 97-0437093

Ruminal fermentation and nutrient digestion in sheep fed

Hydroxyethylsulfonamide

JENKINS T C

Department of Animal, Dairy, and Veterinary Sciences, Clemson University

Clemson, SC 29630, United States

Journal: Journal of animal science, 1997, 75 (8), 2277-2283

ISSN: 0021-8812, Availability: INIST-3247, 354000067819920330

No. of Refs.: 18 ref.

Document Type: P (Serial), A (Analytic)

Country of Publication: United States

Language: English

Hydroxyethylsulfonamide (HESA) was reported previously to protect soybean oil from ruminal biohydrogenation and increase plasma

unsaturated fatty acids in sheep. Two digestibility

trials with sheep and a rumen in vitro trial were conducted in this study to determine the effects of HESA on ruminal VFA and nutrient digestibility. Trial 1 was a 4 x 4 Latin square with 17-d periods in which four wethers were fed either a control diet (CON) with no added fat, 2.5% soybean oil (SBO), 5% butylsulfonamide (BuSA), or 5% HESA. The HESA diet was ground with a

mortar and pestle before feeding to disperse fat lumps that formed during diet mixing. Compared with the CON diet, the HESA diet reduced DMI, acetate/propionate (A/P) and total tract fiber digestibility, but these

were not affected by SBO or BuSA. Trial 2 was a 24-h rumen in vitro study showing that total VFA concentration and A/P in cultures were reduced by 10% linoleic acid but not by 10% ethanolamine or 10% HESA. In Trial 3, four

wethers were fed the CON and HESA diets in a replicated 2 x 2 Latin square to determine digestibility responses to HESA when grinding was avoided. Fiber digestibilities and A/P were not affected by HESA in Trial 3. The

HESA in this study had variable effects on fiber digestibility that may have been related to physical attributes of the diet, including particle size. Substitution of ethanolamine for butylamine during synthesis of the

amide increased fatty acid digestibility but reduced dry matter intake.

English Descriptors: Animal feeding, Rumen, Fermentation, Digestion, Digestibility, Soybean oil, Processed food, Nutrient, Fatty amide, Fatty acids, Dietary fiber, Sheep.

Broad Descriptors: Ruminant animal, Stomach, Digestive system, Lipids, Artiodactyla, Ungulata, Mammalia, Vertebrata, Animal ruminant, Estomac, Appareil digestif, Lipide, Artiodactyla, Ungulata, Mammalia, Vertebrata, Animal ruminant, Estomago, Aparato digestivo, Lipido, Artiodactyla, Ungulata, Mammalia, Vertebrata.

French Descriptors: Alimentation animale, Rumen, Fermentation, Digestion, Digestibilité, Huile soja, Aliment transformé, Nutriments, Amide, gras, Acide gras, Fibre alimentaire, Mouton.

Classification Codes: 002A36C03

Copyright (c) 1997 INIST-CNRS. All rights reserved.

16/9/15 (Item 3 from file 144)

DIALOG(R) File 144 Pascal

(c) 1999 INIST/CNRS. All rights reserved.

12387524 PASCAL No. 96-0034589

Apparent pK_{SUB} of the fatty acids within ordered mixtures of model human stratum corneum lipids

LIECKFELDT R, VILLALAIN J, GOMEZ-FERNANDEZ J C, LEE G

Erlangen univ., dep. pharmaceutical technology, Federal Republic of Germany

Journal: Pharmaceutical research, 1995, 12 (11), 1614-1617

ISSN: 0724-8741, CODEN: PHREEB, Availability: INIST-20257,

354000059147680070

No. of Refs.: 14 ref.

Document Type: P (Serial), C (Book review), A (Analytic)

Country of Publication: USA

Language: English

Purpose: The apparent pK_{SUB} of the fatty acids within hydrated (30% w/w) model human stratum corneum (SC) lipid mixtures should be measured.

Methods: The degree of ionisation of the fatty acids was calculated as a function of pH using Fourier transform infrared spectroscopy. The

relative intensity of the stretching bands of the unionized and ionized carboxylic groups was determined and fitted to the relevant expression for ionic equilibrium of a monoprotic acid. The pK_{SUB} was then calculated

for increasing proportion of unsaturated fatty acid.

Results: Values for pK_{SUB} in the range 6.2-7.3 were found, increasing with greater proportion of oleic acid. These

are some 1.5-3 pH units higher than the pK_{SUB} of fatty acids in molecular solution. Conclusions: As there exists a pH-gradient across the

SC, the degree of ionisation will also vary. In the innermost SC layers, a pH of 7 will produce 90% ionization of the fatty acids and head-group

repulsion will be great. At the SC surface, the pH of 5 will cause almost minimal head-group repulsion, tending to increase crystallinity and

promote a bilayer structure.

English Descriptors: Fatty acids, pK, Human, Stratum corneum, Lipids, Ionization, In vitro, Mixture.

French Descriptors: Acide gras, pK, Homme, Couche cornée, Lipide, Ionisation, In vitro, Mélange.

Classification Codes: 002A19

16/9/17 (Item 4 from file 144)

DIALOG(R) File 144 Pascal

(c) 1999 INIST/CNRS. All rights reserved.

12025065 PASCAL No. 95-0217419

Influence of oleic acid on the structure of a mixture of hydrated model stratum corneum fatty acids and their soaps

LIECKFELDT R, VILLALAIN J, GOMEZ-FERNANDEZ J C, LEE G

Univ. Erlangen, dep. pharmaceutical ecology, 91058 Erlangen, Federal

Republic of Germany

Journal: Colloids and surfaces, A, Physicochemical and engineering aspects, 1994, 90 (2-3), 225-234

ISSN: 0927-7757, Availability: INIST-18274 A, 354000041670950110

No. of Refs.: 22 ref.

Document Type: P (Serial), A (Analytic)

Country of Publication: Netherlands

Language: English

The phase behaviour of a hydrated (32% (w/w) water) mixture of saturated and unsaturated fatty acids and their soaps has been

examined. By progressively increasing the proportion of oleic acid it could be shown that this unsaturated component exists partly as a

separate phase within the others. The unsaturated fatty acids form an H_{SUB} I phase at 25 °C, whereas the saturated fatty acids form a

fatty acid-soap crystal under the conditions employed. The results help to explain the role played by the fatty acids (and also cholesterol) within

the lipid fraction of human stratum corneum. A feature of this study is a comparison of the results obtained by X-ray diffraction, differential

scanning calorimetry and Fourier transform infrared spectroscopy.

English Descriptors: Experimental study, X ray diffraction, Infrared spectrometry, Differential scanning calorimetry, Fatty acids, Soap, Stratum corneum, Lipids, Polymorphism, Carboxylic acid, Oleic acid, Stearic acid, Palmitic acid, Myristic acid.

French Descriptors: Etude expérimentale, Diffraction RX, Spectrométrie IR, Calorimétrie différentielle, balayage, Acide gras, Savon, Couche cornée, Lipide, Polymorphisme, Acide carboxylique, Oléique acide, Stearique acide, Palmitique acide, Myristique acide.

Classification Codes: 001C01I07

2 ds

Set Items Description
 S1 1871321 BACTER?
 S2 0 MEMBRANE#
 S3 1452758 MEMBRANE?
 S4 0 S1 (10N) S2
 S5 26356 S1 (10N) S3
 S6 3058102 INCREASE? OR ENHANC?
 S7 607785 FLUID?
 S8 26248 S6 (10N) S7
 S9 15 S5 (10N) S8
 S10 10 RD S9 (unique items)
 S11 18323 UNSATURATED (5N) FATTY (W) ACID?
 S12 1620 S6 (10N) S11
 S13 17 S12 AND S5
 S14 14 RD S13 (unique items)
 S15 27 S12 AND S6 AND TRANSFORM?
 S16 17 RD S15 (unique items)
 S17 S8 and S1 and transform?

26248 S8
 1871321 S1
 600341 TRANSFORM?
 S17 18 S8 AND S1 AND TRANSFORM?
 S17

completed examining records
 S18 12 RD S17 (unique items)
 S18/k/1-12

18/K/1 (Item 1 from file 55)
 DIALOG(R)File 55 (c) 1999 BIOSIS All rights reserved

Transformation of sterols by *Mycobacterium vaccae*. Effect of lecithin on the permeability of cell envelopes to

ABSTRACT An enhancement of beta-sitosterol transformation and androstenedione by *Mycobacterium vaccae* observed in medium containing egg yolk lecithin, was associated with

of methyl-branched components in the control cell preparation. The enrichment in unsaturated fatty acids increases fluidity of lipids, whereas the decrease in methyl-branched fatty acids may affect the conformation of

DESCRIPTORS
 BIOSYSTEMATIC NAMES %Bacteria%-General Unspecified
 Eubacteria %Bacteria%
 Eubacteria %Bacteria%
 ORGANISMS %Bacteria% (%Bacteria% - General Unspecified)
 BIOSYSTEMATIC CLASSIFICATION (SUPER TAXA) %Bacteria%
 MISCELLANEOUS TERMS %TRANSFORMATION%

18/K/2 (Item 2 from file 55)
 DIALOG(R)File 55 (c) 1999 BIOSIS All rights reserved

ABSTRACT Osteopontin (OPN), a secreted acidic phosphoglycoprotein found in many tissues and body fluids, is produced in increased amounts in response to certain infections and after malignant transformation. In this study we examined the action of OPN on macrophage cytotoxicity and nitric oxide (NO) synthesis. A human OPN cDNA was cloned into the bacteriophage T7-based vector, pET8C, and the encoded protein purified from an induced culture of *Escherichia*

18/K/3 (Item 3 from file 55)
 DIALOG(R)File 55 (c) 1999 BIOSIS All rights reserved

ABSTRACT of insoluble aggregates. The mature enzyme was detected in both the periplasm and the cultural fluids in the form three methanases with an increased (as compared with the original strain) content of methanases I and II. The cell envelope of *E. coli* DH1 %transformed% by plasmid PIII-7 with the *phoA* gene differed from that of the original strain

result of restricted secretion sites and lack of inhibition of translation of secreted proteins in %bacteria%
 DESCRIPTORS
 BIOSYSTEMATIC NAMES Eubacteria %Bacteria%
 BIOSYSTEMATIC CLASSIFICATION (SUPER TAXA) %Bacteria%

18/K/4 (Item 4 from file 55)
 DIALOG(R)File 55 (c) 1999 BIOSIS All rights reserved

ABSTRACT during pregnancy and labour, both at term and preterm, and to establish the effects of %bacterial% endotoxin and cytokines on the in vitro release of TNF-alpha from intrauterine tissues. Maternal

the time of labour (543.5 +/- 138.6 ng/l, N=43). In contrast, amniotic %fluid% TNF-alpha concentrations %increased% significantly (p lt 0.05) during pregnancy (early pregnancy, EP, 93.0 +/- 24.8 ng

alpha. Furthermore, the release of TNF-alpha was increased significantly (p lt 0.05) by %bacterial% endotoxin (lipopolysaccharide, 10 ng/1-10 mg/l) but was not affected by the following

stimulating factor (1.2 nmol/l), leukaemia inhibitory factor (0.45 nmol/l) and %transforming% growth factor-beta (0.4 nmol/l). The data obtained in this study are consistent.

MISCELLANEOUS TERMS %TRANSFORMING% GROWTH FACTOR-BETA

18/K/5 (Item 5 from file 55)
 DIALOG(R)File 55 (c) 1999 BIOSIS All rights reserved

ABSTRACT their ferritin content after infection by HIV-1, not justified by the modest and late %increase% of ferritin in the %fluids% due to disruption of infected cells. Since ferritin is involved in the control of cell

DESCRIPTORS
 BIOSYSTEMATIC NAMES Eubacteria %Bacteria%
 BIOSYSTEMATIC CLASSIFICATION (SUPER TAXA) %Bacteria%
 MISCELLANEOUS TERMS BLAST %TRANSFORMATION% INDUCTION

18/K/6 (Item 1 from file 5)
 DIALOG(R)File 5 (c) 1999 BIOSIS All rights reserved

ABSTRACT To circumvent problems encountered in the synthesis of active chymosin in a number of %bacteria% and fungi, a recombinant DNA L-form expression system that directed the complete secretion of

SpeA. Secretion of fusion prochymosin enzymatically and immunologically indistinguishable from bovine prochymosin was achieved after %transformation% of two stable protoplast type L-form strains derived from *Proteus mirabilis*. The secreted proenzyme

as high as 40 +/- 10 mu g/ml were obtained in the cell-free culture %fluid% of strain L99 carrying a naturally altered expression plasmid of %increased% segregational stability. The expression-secretion system described may be generally useful for production of recombinant
 BIOSYSTEMATIC CLASSIFICATION (SUPER TAXA)
 Microorganisms
 %Bacteria%

18/K/7 (Item 2 from file 5)
 DIALOG(R)File 5 (c) 1999 BIOSIS All rights reserved

PROTEIN-LIPID INTERACTIONS IN PHOSPHOLIPID MONOLAYERS CONTAINING THE %BACTERIAL% ANTENNA PROTEIN B-800-850

ABSTRACT protein B800-850 (LHCP) and in some cases additionally the reaction center of the photosynthetic %bacterium%
 Rhodospseudomonas
 sphaeroides are reported. Information on monolayer preparation as well as on protein/lipid and

is shown that a homogeneous distribution of functional proteins can be achieved. This can be %transformed% into a regular pattern-like distribution by inducing a phospholipid phase transition. Although the LHCP

decreases the lateral pressure necessary to crystallize the lipid. This is probably due to an %increase% in order of the %fluid% phase. A pressure-induced conformation change of the LHCP is detected via a drastic change

BIOSYSTEMATIC CLASSIFICATION (SUPER TAXA)
 Microorganisms
 %Bacteria%

18/K/8 (Item 3 from file 5)
 DIALOG(R)File 5 (c) 1999 BIOSIS All rights reserved

ABSTRACT sensitive in contrast to mature lipoprotein. The precursor protein with the peptide extension is apparently %transformed% into a new assembly intermediate after the extended peptide is cleaved off. This intermediate may

The results are discussed in terms of control of gene expression for matrix protein. PEA %increased% the membrane %fluidity%

BIOSYSTEMATIC CLASSIFICATION (SUPER TAXA)

Microorganisms
 %%%Bacteria%%%

18/K/9 (Item 4 from file 5)

DIALOG(R)File 5 (c) 1999 BIOSIS All rts reserv

ABSTRACT T [thymus-derived] and B [bone marrow-derived] lymphocyte ratio, leukocyte migration inhibition and lymphocyte %%%transformation%%% responses to dental plaque %%%bacteria%%% (Actinomyces viscosus %%%Bacteroides%%% melaninogenicus, Fusobacterium nucleatum, and Veillonella parvula) and purified protein derivative or phytohemagglutinin and lymphocyte ATPase

period III) after 14 d with optimal oral hygiene. After period I, gingival inflammation and %%%increased%%% gingival %%%fluid%%% flow developed in all groups, in group C some of the clinical and immunological responses

DESCRIPTORS HUMAN ACTINOMYCES-VISCOSUS

%%BACTEROIDES%%-MELANINOTICUS

FUSOBACTERIUM-NUCLEATUM VEILLONELLA-PARVULA

IMMUNOLOGIC-DRUG PURIFIED

PROTEIN DERIVATIVE PHYTO HEM AGGLUTININ LYMPHOCYTE ATPASE

BIOSYSTEMATIC CODES

04910 %%%Bacteroidaceae%%% (1979-)

05210 Veillonellaceae (1979-)

05810 Actinomycetaceae (1979-)

05822 Mycobacteriaceae (1979-)

11000 Plantae-Unspecified

06215 Hominidae

BIOSYSTEMATIC CLASSIFICATION (SUPER TAXA)

Microorganisms

%%Bacteria%%%

Plants

Animals

Chordates

Vertebrates

Mammals

Primates

Humans

18/K/10 (Item 1 from file 434)

DIALOG(R)File 434 (c) 1998 Inst for Sci Info All rts reserv

Research Fronts 001 (SUPEROXIDE ANION RELEASE

POLYMORPHONUCLEAR

LEUKOCYTES, SELENIUM TREATMENT IN RHEUMATOID-ARTHRITIS

HUMAN-ENDOTHELIAL CELLS, SYNOVIAL-%%FLUID%%%

(GRANULOCYTES)

061614 001 (TRANSCRIPTIONAL %%%ENHANCER%%% VIRAL

REGULATORY ELEMENTS

ADENOVIRUS E1A GENE, REGULATION OF POLYOMAVIRUS LATE

PROMOTER ACTIVITY

ACTIVATION OF GENE

FREQUENCY IN LYMPHOCYTES, HAMSTER HEPATOCYTE-MEDIATED INDUCTION)

0613403 001 (ROUS-SARCOMA VIRUS, TYROSINE PHOSPHORYLATION,

%%TRANSFORMING%%% PROTEIN, PP60C-SRC KINASE, EPIDERMAL

GROWTH-FACTOR

RECEPTOR)

0614000 001 (PROENKEPHALIN-A RELATED PEPTIDES

INHIBITS DIFFERENTIATION OF A MOUSE ERYTHROLEUKEMIA

(CELL-LINE)

0611719 001 (LIPOPOLYSACCHARIDE OF LEGIONELLA-PNEUMOPHILA

%%BACTERIAL%%% LIPOPOLYSACCHARIDES IN POLYACRYLAMIDE

CELLS, POLYVALENT

PSEUDOMONAS-AERUGINOSA VACCINE PEV)

0611133 001 (RAT-LIVER MICROSOMAL

18/K/11 (Item 1 from file 144)

DIALOG(R)File 144 (c) 1999 INIST/CNRS All rts reserv

Leg 150: The shallow- to deep-water transect provides an opportunity to examine the diagenetic %%%transformations%%% of the sediment with increasing distance from the shoreline. Numerous episodes of diagenesis with formation

plain sediment. In contrast, less nucleation of crystallites, coarser crystal forms, and diagenesis below the %%%bacterial%%% sulfate reduction zone are characteristic of the upper slope. Sites. Diagenesis is patchy at the

Eocene sediment by a decrease in the calcium carbonate and opal content and by an %%%increase%%% in detrital minerals. Diagenetic %%%fluids%%% %%%transformed%%% the unconformable surface of upper Eocene biosiliceous

chalks into a mosaic of euhedral to subhedral

brown glauconites that indicate terrigenous sediment transport and reworking. More episodes of diagenesis, abundant former %%%fluid%%% migration routes, which suggest %%%increased%%% pore-%%fluid%%% activity, and sediment reworking, are associated with the two other Eocene unconformable surfaces. Energy dispersive

English Descriptors: Atlantic, continental slope, Eocene, drilling, Ocean Drilling Program, diagenesis, sea level, carbonates, boreholes, depth, unconformities, %%%transformations%%%, micrite, calcite, dolomite, silica, cement, coastal environment, nucleation, crystallites, changes of level, eustasy, microfossils, thin

French Descriptors: Nord Ouest, Talus continental, Eocene, Forage, ODP, Diagenese, Niveau marin, Carbonate, Puits forage, Profondeur, Discordance, %%%Transformation%%%, Micrite, Calcite, Dolomite, Silice, Ciment roche, Milieu littoral, Nucleation, Cristallite, Variation niveau, ODP Leg 150

Spanish Descriptors: New Jersey, Planicie costera, Eoceno, Sondeo, ODP,

Diagenesis, Carbonato, Profundidad, Discordancia,

%%Transformacion%%%,

Micrita, Calcita, Dolomita, Silice, Cemento roca, Medio litoral,

Nucleacion, Cristallita, Variacion nivel, Eustasia, Microfossil, Pelicula

18/K/12 (Item 2 from file 144)

DIALOG(R)File 144 (c) 1999 INIST/CNRS All rts reserv

be investigated by ESR. We report the first ESR study of an integral membrane protein, %%%bacteriorhodopsin%%% (BR) in well-aligned multilayers. We have also examined ISDU-aligned DPPC multilayers incorporating a

2 mol % GA/DPPC membranes. The boundary regions for both BR and GA also exhibit %%%increased%%% %%%fluidity%%% as monitored by the rotational diffusion rates. The high water content of the GADPPC

English Descriptors: study, EPR spectra, Spin label technique, Cell membranes, Subcellular distribution, Ultracentrifugation, Membrane proteins, Lipids, Phase %%%transformations%%%, Alignment, %%%Bacteriorhodopsin%%%, Vesicles, Bilayers

French Descriptors: 8722B, 8764H, Spectre RPE, Technique marquage spin, Membrane plasmique, Distribution intracellulaire, Ultracentrifugation, Proteine membranaire, Lipide, %%%Transformation%%% phase, Alignement, %%%Bacteriorhodopsine%%%, Vesicule, Bicouche

Set	Items	Description
S1	1871321	BACTER?
S2	0	MEMBRANE#
S3	1452758	MEMBRANE?
S4	0	S1 (10N) S2
S5	26356	S1 (10N) S3
S6	3058102	INCREAS? OR ENHANC?
S7	607785	FLUID?
S8	26248	S6 (10N) S7
S9	15	S5 (10N) S8
S10	10	RD S9 (unique items)
S11	18323	UNSATURATED (5N) FATTY (W) ACID?
S12	1620	S6 (10N) S11
S13	17	S12 AND S5
S14	14	RD S13 (unique items)
S15	27	S12 AND S6 AND TRANSFORM?
S16	17	RD S15 (unique items)
S17	18	S8 AND S1 AND TRANSFORM?
S18	12	RD S17 (unique items)
? s3 (10n) fluid?		

1452758 S3
 19612 FLUIDIT?
 S19 14567 S3 (10N) FLUIDIT?
 ? s19 and s6 and transform? and s1

14567 S19
 3058102 S6
 600341 TRANSFORM?
 1871321 S1
 S20 5 S19 AND S6 AND TRANSFORM? AND S1
 ? rd s20

completed examining records
 S21 5 RD S20 (unique items)
 ? t s21/K-15

21/K/1 (Item 1 from file 5)
DIALOG(R)File 5(c) 1999 BIOSIS All rts. reserv

ABSTRACT alkalioid content as well as lipid composition. When lowering the temperature, the roots responded by %%%increasing%%% the degree of unsaturation of cellular lipids, which was mainly due to an %%%increased%%% proportion of linolenic acid in the main lipid classes. The modifications in lipid composition were obviously necessary for the roots to retain the proper cell %%%membrane%%% %%%fluidity%%% at each temperature. Despite of changes in %%%membrane%%% lipids, no effect on the distribution of indole alkaloids between the roots and the medium could be detected. Instead, the level of alkalioid accumulation showed a clear %%%increase%%% with lowering temperature.

DESCRIPTORS PLANT AGROBACTERIUM-RHIZOGENES
%%BACTERIA%% MICROORGANISM
CROP INDUSTRY HORTICULTURE GENETIC %%%TRANSFORMATION%%%
ROOT MORPHOLOGY
LINOLENIC ACID TEMPERATURE ADAPTATION GROWTH RATE
BIOSYSTEMATIC CLASSIFICATION (SUPER TAXA)
Microorganisms
%%Bacteria%%
Eubacteria
Plants
Vascular Plants
Spermatophytes
Angiosperms
Dicots

21/K/2 (Item 2 from file 5)
DIALOG(R)File 5(c) 1999 BIOSIS All rts. reserv

INVESTIGATION INTO THE %%%FLUIDITY%%% OF LIPOPOLYSACCHARIDE AND FREE LIPID
A %%%MEMBRANE%%% SYSTEMS BY FOURIER-%%TRANSFORM%%% IR SPECTROSCOPY AND DIFFERENTIAL SCANNING CALORIMETRY

ABSTRACT lipopolysaccharides and of their lipid moiety, free lipid A, of various species of Gram-negative %%%bacteria%%%, especially of *Salmonella minnesota* and *Escherichia coli*, has been investigated by applying mainly Fourier-%%transform%%% infrared spectroscopy and differential scanning calorimetry. For enterobacterial strains, the transition temperatures of the gel

acyl chains of free lipid A and lipopolysaccharide preparations significantly more rigid and also partially %%%increase%%% the transition temperature. The influence of Mg²⁺ is highest for free lipid A and decreases with %%%increasing%%% length of the sugar side chain within the lipopolysaccharide molecules, whereas the effect of a

phase transition is distinctly expressed only at water concentrations higher than 50-60%. A further %%%increase%%% of the water content still leads to an %%%increase%%% in the phase-transition enthalpy, particularly for lipopolysaccharides with a more complete sugar moiety. The

DESCRIPTORS SALMONELLA-MINNESOTA ESCHERICHIA-COLI
GRAM-NEGATIVE
%%BACTERIA%% HOST CELL MEMBRANE INTERACTIONS
BIOSYSTEMATIC CODES
04000 %%%Bacteria%%-Unspecified (1979-)
04810 Enterobacteriaceae (1979-)
BIOSYSTEMATIC CLASSIFICATION (SUPER TAXA)
Microorganisms
%%Bacteria%%

21/K/3 (Item 3 from file 5)
DIALOG(R)File 5(c) 1999 BIOSIS All rts. reserv

ON PHASE CHANGES IN INNER AND OUTER MEMBRANES AND LIPOPOLYSACCHARIDE FROM ACINETOBACTER-CALCOACETICUS A FOURIER-%%TRANSFORM%%% IR STUDY

ABSTRACT The successful transfer of the resistance plasmid RP1 into the Gram-negative %%%bacterium%%% *Acinetobacter calcoaceticus* resulted in %%%increased%%% resistance of this microorganism to the antibiotics tetracycline and tetracycline. Microorganisms harboring the RP1 plasmid showed altered fatty acid composition in the lipopolysaccharide fraction and %%%increased%%% outer membrane permeability compared to organisms without the plasmid. Thermotropic gel to liquid crystal lipid phase changes were detected in both inner and outer membranes and purified lipopolysaccharide by Fourier-%%transform%%% infrared spectroscopy. The phase transition temperatures observed in the outer membranes and associated lipopolysaccharide of

than those of the plasmid-free organisms, while little difference was observed for the inner %%%membranes%%%. The plasmid-induced decrease in outer %%%membrane%%% %%%fluidity%%% may play a mediating role in

the mechanisms of antibiotic resistance and susceptibility to host.
BIOSYSTEMATIC CLASSIFICATION (SUPER TAXA)
Microorganisms
%%Bacteria%%

21/K/4 (Item 4 from file 5)
DIALOG(R)File 5(c) 1999 BIOSIS All rts. reserv

ABSTRACT incubation of lymphocytes with Con A. Cell electrophoretic mobility, however, was altered (mean cell mobility %%%increased%%% by 10-15%) in a fast response to stimulation and was observed within several hours.

cell mobility of the experimental cells is believed to be associated with blastogenesis. Neither blastogenic %%%transformation%%% nor short term %%%membrane%%% alterations associated with human lymphocyte activation lead to lipid %%%fluidity%%% changes as measured in steady state by the fluorescence polarization of both DPH and TMA.
BIOSYSTEMATIC CLASSIFICATION (SUPER TAXA)
Microorganisms
%%Bacteria%%
Plants
Vascular Plants
Spermatophytes
Angiosperms
Dicots
Animals
Chordates
Vertebrates
Mammals
Primates
Humans

21/K/5 (Item 5 from file 5)
DIALOG(R)File 5(c) 1999 BIOSIS All rts. reserv

ABSTRACT sensitive in contrast to mature lipoprotein. The precursor protein with the peptide extension is apparently %%%transformed%%% into a new assembly intermediate after the extended peptide is cleaved off. This intermediate may

The results are discussed in terms of control of gene expression for matrix protein. PEA %%%increased%%% the %%%membrane%%% %%%fluidity%%%.

BIOSYSTEMATIC CLASSIFICATION (SUPER TAXA)
Microorganisms
%%Bacteria%%
? ds

Set	Items	Description
S1	1871321	BACTER?
S2	0	MEMBRANE#
S3	1452758	MEMBRANE?
S4	0	S1 (10N) S2
S5	26356	S1 (10N) S3
S6	3058102	INCREASE? OR ENHANC?
S7	607785	FLUID?
S8	26248	S6 (10N) S7
S9	15	S5 (10N) S8
S10	10	RD S9 (unique items)
S11	18323	UNSATURATED (5N) FATTY (W) ACID?
S12	1620	S6 (10N) S11
S13	17	S12 AND S5
S14	14	RD S13 (unique items)
S15	27	S12 AND S6 AND TRANSFORM?
S16	17	RD S15 (unique items)
S17	18	S8 AND S1 AND TRANSFORM?
S18	12	RD S17 (unique items)
S19	14567	S3 (10N) FLUIDIT?
S20	5	S19 AND S6 AND TRANSFORM? AND S1
S21	5	RD S20 (unique items)

? e au=bloom f

Ref	Items	Index-term
E1	2	AU=BLOOM ES
E2	42	AU=BLOOM ET
E3	215	AU=BLOOM F
E4	1	AU=BLOOM F A
E5	1204	AU=BLOOM F E
E6	1	AU=BLOOM F F
E7	20	AU=BLOOM F L
E8	34	AU=BLOOM F R
E9	2	AU=BLOOM FAYE ALVARADO
E10	274	AU=BLOOM FE
E11	1	AU=BLOOM FJ
E12	14	AU=BLOOM FL

Enter P or PAGE for more

Ref Items Index-term
 E13 11 AU=BLOOM FLOYD
 E14 139 AU=BLOOM FLOYD E
 E15 11 AU=BLOOM FR
 E16 4 AU=BLOOM FREDRIC R
 E17 97 AU=BLOOM G
 E18 110 AU=BLOOM G D
 E19 15 AU=BLOOM G E
 E20 1 AU=BLOOM G F
 E21 3 AU=BLOOM G H
 E22 1 AU=BLOOM G L
 E23 1 AU=BLOOM G M
 E24 8 AU=BLOOM G P

Enter P or PAGE for more
 s e3 or e8 or e15 or e16

215 AU=BLOOM F
 34 AU=BLOOM F R
 11 AU=BLOOM FR
 4 AU=BLOOM FREDRIC R
 S22 264 AU="BLOOM F" OR AU="BLOOM F R" OR AU="BLOOM FR" OR
 AU="BLOOM FREDRIC R"

ds

Set Items Description
 S1 1871321 BACTER?
 S2 0 MEMBRANE#
 S3 1452758 MEMBRANE?
 S4 0 S1 (10N) S2
 S5 26356 S1 (10N) S3
 S6 3058102 INCREASE? OR ENHANC?
 S7 607785 FLUID?
 S8 26248 S6 (10N) S7
 S9 15 S5 (10N) S8
 S10 10 RD S9 (unique items)
 S11 18323 UNSATURATED (5N) FATTY (W) ACID?
 S12 1620 S6 (10N) S11
 S13 17 S12 AND S5
 S14 14 RD S13 (unique items)
 S15 27 S12 AND S6 AND TRANSFORM?
 S16 17 RD S15 (unique items)
 S17 18 S8 AND S1 AND TRANSFORM?
 S18 12 RD S17 (unique items)
 S19 14567 S3 (10N) FLUIDIT?
 S20 5 S19 AND S6 AND TRANSFORM? AND S1
 S21 5 RD S20 (unique items)
 S22 264 AU="BLOOM F" OR AU="BLOOM F R" OR AU="BLOOM FR" OR
 AU="BLOOM FREDRIC R"

s s22 and s1

264 S22
 18323 S11
 S22 0 S22 AND S11
 s s22 and s5

264 S22
 26356 S5
 S24 0 S22 AND S5
 s s22 and s1

264 S22
 1871321 S1
 S15 46 S22 AND S1
 rd s25

completed examining records
 S16 30 RD S25 (unique items)
 s s26 and transform?

30 S26
 600341 TRANSFORM?
 S27 6 S26 AND TRANSFORM?
 s s22 and transform?

264 S22
 600341 TRANSFORM?
 S28 10 S22 AND TRANSFORM?
 rd s28

completed examining records
 S29 6 RD S28 (unique items)
 s s29 not s27

6 S29
 6 S27
 S30 0 S29 NOT S27
 s s29/1-6

29/9/1 (Item 1 from file 55)
 DIALOG(R)File 55 Biosis Previews(R)
 (c) 1999 BIOSIS All rights reserved

12024975 BIOSIS NO 199900305494
 Method for increasing the viability and % transformation ability of
 bacteria during or after storage at low temperatures

AUTHOR %%%Bloom Fredric R%%(a), Kuo Jonathan, Lin Jhy-Jhu Ma Jin
 AUTHOR ADDRESS (a)Germantown, MD, USA

JOURNAL Official Gazette of the United States Patent and Trademark Office
 Patents 1221 (1).pNO PAGINATION 15-JUN-99, 1999

PATENT NUMBER US 5891692 PATENT ASSIGNEE Life Technologies Inc
 PATENT COUNTRY USA
 ISSN 0098-1133
 RECORD TYPE Abstract
 LANGUAGE English

ABSTRACT The invention relates to improved E. coli bacteria with enhanced
 viability at low temperatures, methods for producing improved bacterial
 strains capable of enhanced viability at low temperatures, and the
 isolation and use of genetic material capable of enhancing the viability
 of bacteria at low temperatures. In addition to the enhanced viability at
 low temperatures, the bacteria may exhibit enhanced
 % transformation efficiency after storage at low temperatures. As such, the invention
 may be used for the insertion of exogenous DNA sequences into the
 bacteria of the invention

DESCRIPTORS
 MAJOR CONCEPTS Bacteriology, Methods and Techniques, Molecular
 Genetics
 (Biochemistry and Molecular Biophysics)
 BIOSYSTEMATIC NAMES Enterobacteriaceae--Facultatively Anaerobic
 Gram-Negative Rods, Eubacteria, Bacteria, Microorganisms
 ORGANISMS Escherichia coli
 (Enterobacteriaceae)--%% transformation ability enhancement, viability enhancement
 BIOSYSTEMATIC CLASSIFICATION (SUPER TAXA) Bacteria, Eubacteria
 Microorganisms
 CHEMICALS & BIOCHEMICALS DNA--bacterial insertion
 MISCELLANEOUS TERMS Patent

29/9/2 (Item 2 from file 55)
 DIALOG(R)File 55 Biosis Previews(R)
 (c) 1999 BIOSIS All rights reserved

09744522 BIOSIS NO 199598199440
 % transformation efficiency of electroporated E. coli cells with
 plasmid DNA of various sizes
 BOOK TITLE Unity in Diversity

AUTHOR Donahue Robert A Jr; % Bloom Fredric R%%
 BOOK AUTHOR/EDITOR Strauss M S Ed
 AUTHOR ADDRESS Life Technol Inc, 8717 Grovemont Circle, Gaithersburg,
 MD 20884-9980 USA
 pPage varies ABSTRACTS 151 1995

BOOK PUBLISHER American Association for the Advancement of Science
 (AAAS)
 1333 H. Street N.W. Washington, DC 20005, USA
 CONFERENCE/MEETING 1995 AAAS Annual Meeting and Science Innovation
 Exposition The 161st National Meeting of the American Association for the
 Advancement of Science Atlanta, Georgia, USA February 16-21, 1995
 RECORD TYPE Citation
 LANGUAGE English

DESCRIPTORS
 MAJOR CONCEPTS Genetics, Membranes (Cell Biology), Methods and
 Techniques, Physiology
 BIOSYSTEMATIC NAMES Enterobacteriaceae--Eubacteria, Bacteria
 ORGANISMS Escherichia coli (Enterobacteriaceae)
 BIOSYSTEMATIC CLASSIFICATION (SUPER TAXA) bacteria, eubacteria
 microorganisms
 MISCELLANEOUS TERMS DNA TRANSFER METHOD, MEETING
 ABSTRACT, MEETING
 POSTER
 CONCEPT CODES
 03502 Genetics and Cytogenetics-General
 10052 Biochemical Methods-Nucleic Acids, Purines and Pyrimidines
 10504 Biophysics-General Biophysical Techniques
 10508 Biophysics-Membrane Phenomena
 10610 External Effects-Electric, Magnetic and Gravitational Phenomena
 31000 Physiology and Biochemistry of Bacteria
 31500 Genetics of Bacteria and Viruses
 00520 General Biology-Symposia, Transactions and Proceedings of
 Conferences, Congresses, Review Annuals
 10062 Biochemical Studies-Nucleic Acids, Purines and Pyrimidines
 BIOSYSTEMATIC CODES

06702 Enterobacteriaceae (1992-)

29/9/3 (Item 1 from file 5)
DIALOG(R)File 5 Biosis Previews(R)
(c) 1999 BIOSIS All rights reserved

08250004 BIOSIS NO 000094041352
DH11S AN ESCHERICHIA-COLI STRAIN FOR PREPARATION OF
SINGLE-STRANDED DNA
FROM PHAGEMID VECTORS

AUTHOR LIN J-J SMITH M JESSEE J %%%BLOOM F %%%
AUTHOR ADDRESS MOL BIOL RES AND DEV LIFE TECHNOL INC P O
BOX
9418 GAITHERSBURG MD 20877

JOURNAL BIOTECHNIQUES 12 (5) 1992 718-721
FULL JOURNAL NAME Biotechniques
CODEN BTNQD
RECORD TYPE Abstract
LANGUAGE ENGLISH

ABSTRACT A new Escherichia coli strain DH11S [mcrA
DELTA (mrr-hsdRMS-mcrBC) DELTA (lac-proAB) DELTA (rec1398) deoR
rpsL
srI-thr/F'proAB+lacIqZ DELTA M15] has been constructed
%%%Transformation%%% of DH11S competent cells with any of several
different phagemid vectors [pSPORT1 pBluescript II SK(+) pGEM11Zf(+)]
results in the production of highly purified single-stranded DNAs upon
the addition of M13KO7 helper phage. Contamination by double-stranded
DNAs was observed with all the other studied strains (XL1-Blue, JM109,
DH5 alpha F'1Q). The optimal yield of single-stranded DNA production was
obtained when glycerol stocks made from stationary phase cells or single
colonies from over-night ampicillin plates of DH11S containing the
phagemid vector were infected with M13KO7 helper phage using a wide range
(1 to 100) of multiplicities of infection. Five different pSPORT1 clones
containing cDNA inserts of various lengths (0.3 kb to 2.0 kb) were
compared using these four different bacterial strains. The use of strain
DH11S results in the best yields and quality of single-stranded DNA.
Therefore DH11S appears to be the best all-around host for various
applications that require single-stranded DNA such as DNA sequencing, in
vitro mutagenesis and construction of subtractive cDNA libraries.

DESCRIPTORS OPTIMAL YIELD ANALYTICAL METHOD
CONCEPT CODES

10052 Biochemical Methods-Nucleic Acids Purines and Pyrimidines
10062 Biochemical Studies-Nucleic Acids Purines and Pyrimidines
10506 Biophysics-Molecular Properties and Macromolecules
31300 Physiology and Biochemistry of Bacteria
31500 Genetics of Bacteria and Viruses
32000 Microbiological Apparatus Methods and Media
33504 Virology-Bacteriophage

BIOSYSTEMATIC CODES

02110 Bacterial Viruses-Unspecified (1981-)
06702 Enterobacteriaceae (1992-)

BIOSYSTEMATIC CLASSIFICATION (SUPER TAXA)

Microorganisms
Viruses
Bacteria
Eubacteria

29/9/4 (Item 2 from file 5)
DIALOG(R)File 5 Biosis Previews(R)
(c) 1999 BIOSIS All rights reserved

0191791 BIOSIS NO 000043003264
PLASMID %%%TRANSFORMATION%%% OF ESCHERICHIA-COLI AND
OTHER BACTERIA

AUTHOR HANAHAN D JESSEE J %%%BLOOM F R %%%
AUTHOR ADDRESS DEP BIOCHEM BIOPHYSICS HORMONE RES INST
UNIV CALIF
SAN FRANCISCO CALIF 94143

JOURNAL MILLER J H (ED) METHODS IN ENZYMOLOGY VOL 204
BACTERIAL
GENETIC SYSTEMS XXIX+706P ACADEMIC PRESS INC SAN DIEGO
CALIFORNIA
USA LONDON ENGLAND UK ILLUS ISBN 0-12-182105-6 0(0) 1991
00-113
CODEN MENZA
RECORD TYPE Citation
LANGUAGE ENGLISH

DESCRIPTORS PLATING CALCIUM MANGANESE BASED
%%%TRANSFORMATION%%% AGAR STAB
BOTTLE STORAGE METHOD
CONCEPT CODES
10300 Replication Transcription Translation
13014 Metabolism-Nucleic Acids Purines and Pyrimidines
31000 Physiology and Biochemistry of Bacteria

31500 Genetics of Bacteria and Viruses
32000 Microbiological Apparatus Methods and Media
10062 Biochemical Studies-Nucleic Acids Purines and Pyrimidines
BIOSYSTEMATIC CODES
06702 Enterobacteriaceae (1992-)
BIOSYSTEMATIC CLASSIFICATION (SUPER TAXA)
Microorganisms
Bacteria
Eubacteria

29/9/5 (Item 3 from file 5)
DIALOG(R)File 5 Biosis Previews(R)
(c) 1999 BIOSIS All rights reserved

05646097 BIOSIS NO 000083119244
BIOASSAY FOR SPECIFIC DNA SEQUENCES USING A NON-RADIOACTIVE
PROBE

AUTHOR HARTLEY J L BERNINGER M JESSEE J A %%%BLOOM F
R %%% TEMPLE G F
AUTHOR ADDRESS BETHESDA RESEARCH LAB LIFE TECHNOLOGIES
INC
GAITHERSBURG MD 20877

JOURNAL GENE (AMST) 49 (3) 1986 (RECD 1987) 295-302
FULL JOURNAL NAME GENE (Amsterdam)
CODEN GENED
RECORD TYPE Abstract
LANGUAGE ENGLISH

ABSTRACT A novel method for detecting specific DNA sequences is described.
The method uses a non-radioactive DNA probe, called a probe-vector, that
can %%%transform%%% competent Escherichia coli cells at high efficiency
only when it has hybridized to a specific DNA target, thus forming a
circular, double-stranded, plasmid-like molecule. The probe-vector
carries a plasmid origin of replication and a gene that confers
antibiotic resistance on %%%transformed%%% E. coli. The output of the
assay-colored bacterial colonies on an agar plate-is quantitative and
proportional over a wide range of target concentrations. The utility of
the probe-vector method for detecting hepatitis B virus (HBV) DNA in
human serum is demonstrated. The assay can detect as little as 0.1 pg HBV
DNA. The presence of an internal standard monitors DNA recovery and E
coli %%%transformation%%% efficiency for each sample. The assay has the
potential to simultaneously measure the DNA of two or more pathogens
within the same clinical sample.

DESCRIPTORS ESCHERICHIA-COLI HUMAN SERUM HEPATITIS B VIRUS
DETECTION
VECTOR %%%TRANSFORMATION%%% PATHOGENS
CONCEPT CODES

10010 Comparative Biochemistry General
10052 Biochemical Methods-Nucleic Acids Purines and Pyrimidines
10062 Biochemical Studies-Nucleic Acids Purines and Pyrimidines
10506 Biophysics-Molecular Properties and Macromolecules
12504 Pathology General and Miscellaneous-Diagnostic
31500 Genetics of Bacteria and Viruses
33506 Virology-Animal Host Viruses
36001 Medical and Clinical Microbiology-General Methods and Techniques
36006 Medical and Clinical Microbiology-Virology
10068 Biochemical Studies-Carbohydrates
10300 Replication Transcription Translation
12508 Pathology General and Miscellaneous-Inflammation and
Inflammatory Disease
13014 Metabolism-Nucleic Acids Purines and Pyrimidines
14006 Digestive System-Pathology
15002 Blood Blood-Forming Organs and Body Fluids-Blood and Lymph
Studies
22002 Pharmacology-General
30500 Morphology and Cytology of Bacteria
31000 Physiology and Biochemistry of Bacteria
32000 Microbiological Apparatus Methods and Media
33502 Virology-General Methods
38502 Chemotherapy-General Methods Metabolism

BIOSYSTEMATIC CODES

04810 Enterobacteriaceae (1979-)
86215 Homiidae

BIOSYSTEMATIC CLASSIFICATION (SUPER TAXA)

Microorganisms
Bacteria
Animals
Chordates
Vertebrates
Mammals
Primates
Humans

29/9/6 (Item 1 from file 144)
DIALOG(R)File 144 Pascal
(c) 1999 INIST/CNRS All rights reserved

10201041 PASCAL No 92-0406943

DH11S an Escherichia coli strain for preparation of single-stranded RNA
 from phagemid vectors
 JHY-JHU LIN SMITH M JESSEE J %%%BLOOM F%%
 Life Technologies Inc molecular biology res development Gaithersburg
 MD 20877 USA
 Journal Biotechniques 1992 12 (5) 718-721
 ISSN 0736-6205 CODEN BTNQDO Availability INIST-20939
 354000021257800210
 No of Refs 22 ref
 Document Type P (Serial) , A (Analytic)
 Country of Publication USA
 Language English

Logoff level 99 07 29 D 12 38 49

English Descriptors Escherichia coli, Strain, Single stranded DNA, Vector,
 Phage, Purification, Contamination, Genetic %%%transformation%%
 Broad Descriptors Enterobacteriaceae, Bacteria, Virus, Enterobacteriaceae
 Bacterie, Virus, Enterobacteriaceae, Bacteria, Virus

French Descriptors Escherichia coli, Souche, DNA monocatenaire, Vecteur,
 Bacteriophage, Purification, Contamination, %%%Transformation%%
 genetique

Classification Codes 002A31B01D 215

215

Set Items Description
 S1 1871321 BACTER?
 S2 0 MEMBRANE#
 S3 1452758 MEMBRANE?
 S4 0 S1 (10N) S2
 S5 26356 S1 (10N) S3
 S6 3058102 INCREASE? OR ENHANC?
 S7 607785 FLUID?
 S8 26248 S6 (10N) S7
 S9 15 S5 (10N) S8
 S10 10 RD S9 (unique items)
 S11 18323 UNSATURATED (5N) FATTY (W) ACID?
 S12 1620 S6 (10N) S11
 S13 17 S12 AND S5
 S14 14 RD S13 (unique items)
 S15 17 S12 AND S6 AND TRANSFORM?
 S16 17 RD S15 (unique items)
 S17 18 S8 AND S1 AND TRANSFORM?
 S18 12 RD S17 (unique items)
 S19 14567 S3 (10N) FLUIDIT?
 S20 5 S19 AND S6 AND TRANSFORM? AND S1
 S21 5 RD S20 (unique items)
 S22 264 AU="BLOOM F" OR AU="BLOOM F R" OR AU="BLOOM FR" OR
 AU="BLO-
 OM FREDRIC R"
 S23 0 S21 AND S11
 S24 0 S22 AND S5
 S25 46 S22 AND S1
 S26 30 RD S25 (unique items)
 S27 6 S26 AND TRANSFORM?
 S28 10 S22 AND TRANSFORM?
 S29 6 RD S28 (unique items)
 S30 0 S29 NOT S27
 S s22 and (fatty (w) acid?)

264 S22
 248583 FATTY
 2568254 ACID?
 222514 FATTY(W)ACID?
 S31 0 S22 AND (FATTY (W) ACID?)
 2 log y

17sep59 12 38 49 User231899 Session D254 3
 \$3 24 1 760 DialUnits File55
 \$13 95 9 Type(s) in Format 9
 \$1 65 11 Type(s) in Format 95 (KWIC)
 \$15 60 20 Types
 \$24 84 Estimated cost File55
 \$17 17 3 270 DialUnits File5
 \$31 00 20 Type(s) in Format 9
 \$3 75 25 Type(s) in Format 95 (KWIC)
 \$34 75 45 Types
 \$51 92 Estimated cost File5
 \$8 19 0 691 DialUnits File434
 \$0 00 1 Type(s) in Format 95 (KWIC)
 \$0 00 1 Types
 \$8 19 Estimated cost File434
 \$11 48 3 531 DialUnits File144
 \$8 70 6 Type(s) in Format 9
 \$0 80 4 Type(s) in Format 95 (KWIC)
 \$9 50 10 Types
 \$20 98 Estimated cost File144
 OneSearch 4 files 9 252 DialUnits FileOS
 FTSNET 0 483 Hrs
 \$105 93 Estimated cost this search
 \$106 04 Estimated total session cost 9 416 DialUnits

```
PLEASE ENTER HOST PORT ID
PLEASE ENTER HOST PORT ID x
LOGINID d185ixy
PASSWORD
TERMINAL (ENTER 1 2 3 4 OR ?) 3
```

FILE 'USPAT' ENTERED AT 13 40 44 ON 17 SEP 1999

=> s fatty (3n) acid?

```

=> s unsaturated

```

12 113860 UNSATURATED

$$= \frac{1}{2} \left(s_1 + (5n) + s_2 \right)$$

11398 L1 (5A) L2

=> s membrane?

14 111229 MEMBRANE?

= 2.5 bacteria?

15 88604 BACTERI?

$$\rightarrow s | 4(5n) | 5$$
$$\Rightarrow s \mid 4(10n) \mid 5$$

L7 3021 L4 (10A) L5

=> dhis

'DHS' IS NOT A RECOGNIZED COMMAND

 $\Rightarrow d \mid h_1 s$

(FILE 'USPAT' ENTERED AT 13 40 44 ON 17 SEP 1999)

(FILE USPAT ENTERED AT 15)
L1 84913 S FATTY (3N) ACID?
L2 113860 S UNSATURATED
L3 11398 S L1 (5N) L2
L4 111229 S MEMBRANE?
L5 88604 S BACTERI?
L6 1923 S L4 (5N) L5
L7 3021 S L4 (10N) L5

=> s 17 (p) 13

L8 7 L7 (P) L3

=> s increas? or enhanc?

1414558 INCREAS?
448475 ENHANC?
L9 1521498 INCREAS? OR ENHANC?
95% OF LIMIT FOR TOTAL ANSWERS REACHED

$\Rightarrow d$ his

(FILE 'USPAT' ENTERED AT 13 40 44 ON 17 SEP 1999)

L1 84913 S FATTY (3N) ACID?
L2 113860 S UNSATURATED
L3 11398 S L1 (5N) L2
L4 111229 S MEMBRANE?
L5 88604 S BACTERI?
L6 1923 S L4 (5N) L5
L7 3021 S L4 (10N) L5
L8 7 S L7 (P) L3
L9 1521498 S INCREASE? OR ENHANC?

=> s transformation

L*0 60696 TRANSFORMATION

$$\Rightarrow s_{19}(10^n) \approx 10$$

L11 2830 L9 (10A) L10

=> s l11 and l8

112 2111 AND 18

=> d l12 bib rel hit

US PAT NO 5 936 139 [IMAGE AVAILABLE] L12 1 of 2
DATE ISSUED Aug 10 1999
TITLE Cyclopropane fatty acid expression in plants
INVENTOR Katherine M Schmid, 4644 Rookwood Ave Indianapolis IN 46208
APPL-NO 08/844,305
DATE FILED Apr 10, 1997
ART-UNIT 169
PRIM-EXMR Elizabeth F McElwain
LEGAL-REF Saliwanchik, Lloyd & Saliwanchik

US PAT NO 5.936 139 [IMAGE AVAILABLE] L12 1 of 2
REL-US-DATA Continuation of Ser No 275.867 Jul 15, 1994
abandoned

SUMMARY

BSUM(5)

In gram negative "bacteria" cyclopropane fatty acids occur in stationary phase "membranes". The cyclopropane fatty acids produced by *E. coli* are synthesized on phospholipid substrates. In plants, unusual fatty acids are encountered primarily in seed oils. Certain fatty acid modifications, such as DELTA 12 desaturation or hydroxylation, occur on phospholipid substrates, and the fatty acids are then transferred to triacylglycerols. In a few plant species, cyclopropane fatty acids can reach high levels, i.e. up to 40% in *Litchi chinensis*. Vickery et al. 1980, *J. Am. Oil Chem. Soc.* 57: 87-91, and Gaydou et al. 1993, *J. Ag. Food Chem.* 41: 886-890. It is more common to find cyclopropane "fatty" acids, i.e. the corresponding "unsaturated" cyclopropane "fatty".

****acids**** particularly in the order Malvales (for example, as in the report by Bohannon and Kleiman, *Lipids* 13 (1978): 270-273), and a biosynthetic pathway through cyclopropane fatty acids was postulated by Yano et al. 1972 *Lipids* 7: 35-45. However, no in vitro measurement of cyclopropane fatty acid synthase activity has been reported in plant tissues to confirm the existence of this pathway. It is unknown if plants will express the bacterial *cfa* gene, if the corresponding messenger RNA will translate to active protein, and whether active bacterial cyclopropane fatty acid synthetase will cause the synthesis of cyclopropane fatty acid-phospholipids. Furthermore, it is unknown in plants where cyclopropane fatty acids do not occur normally whether these cyclopropane fatty acids will be channelled from phospholipids into triacylglycerol. Although the *E. coli* cyclopropane fatty acid synthase normally acts on phospholipids containing vacenate (18:1 DELTA 11) and palmitoleate (16:1 DELTA 9), ****unsaturated**** ****fatty**** ****acid**** anoxitrophs grown on oleate (18:1 DELTA 9) will accumulate the corresponding cyclopropane fatty acid, namely dihydrosterculate (DHS). Marinari et al. 1974 *Biochemistry* 13: 1978-1983 and Ohirogge et al. 1976 *Biochim. Biophys. Acta* 431: 257-267. Phosphatidylethanolamine, phosphatidylglycerol and cardiolipin are effective substrates for purified *E. coli* cyclopropane fatty acid synthase. Phosphatidylcholine is unsatisfactory as a substrate for the *Clostridium butyricum* enzyme. Law J. H. 1971 *Accts. Chem. Res.* 4: 199-203.

DETD(DESC)

DETD(4)

In practicing the present invention a bacterial *cfa* gene, combined with a plant operable promoter and any other desirable or necessary expression ****enhancing**** sequences (ie, termination sequences (polyadenylation sequences), is inserted into a ****transformation**** vector, and the plant cell employing standard transformation techniques. Once transformed, whole plants are regenerated which stably incorporate the *cfa* gene within their genome. The plants express the *cfa* gene. Expression can be constitutive or tissue specific. Since oil is produced from the seed of oilseed crops it is preferred to express the *cfa* gene under the control of a seed-specific promoter in oilseeds for maximum recovery of cyclopropane fatty acids for lubricant and other uses.

=> d112 2 bib rel hit

US PAT NO 5 891 692 [IMAGE AVAILABLE] L12 2 of 2
 DATE ISSUED Apr 6, 1999
 TITLE Method for ****increasing**** the viability and ****transformation**** ability of bacteria during or after storage at low temperatures
 INVENTOR Fredric R. Bloom, Germantown, MD
 Jonathan Kuo, Germantown, MD
 Jhy-Jhu Lin, Potomac, MD
 Jin Ma, Brookville, MD
 ASSIGNEE Life Technologies, Inc., Rockville, MD (U.S. corp.)
 AFPL-NO 08/826 426
 DATE FILED Mar 27, 1997
 ART-UNIT 166
 PRIM-EXMR Johnny F. Railey, II
 LEGAL-REP Jeffrey Auerbach, Kevin McCabe

US PAT NO 5 891 692 [IMAGE AVAILABLE] L12 2 of 2
 TITLE Method for ****increasing**** the viability and ****transformation**** ability of bacteria during or after storage at low temperatures

ABSTRACT

The invention relates to improved *E. coli* bacteria with enhanced viability at low temperatures, methods for producing improved bacterial strains capable of enhanced viability at low temperatures, and the isolation and use of genetic material capable of enhancing the viability of bacteria at low temperatures. In addition to the ****enhanced**** viability at low temperatures, the bacteria may exhibit ****enhanced**** ****transformation**** efficiencies after storage at low temperatures. As such, the invention may be used for the insertion of exogenous DNA sequences into the bacteria of the invention.

SUMMARY

BSUM(4)

The invention relates to stable storage of bacteria at low temperatures (e.g., about 4 degree C to about -20 degree C). Specifically, the invention relates to improved bacteria having ****enhanced**** viability or ****enhanced**** ****transformation**** efficiency during storage at low temperatures, methods for producing such bacteria, and the genetic material involved in such ****enhancement****. The invention further relates to such cells made competent for ****transformation**** to methods for making such competent cells, and to methods of transforming such competent cells.

SUMMARY

BSUM(10)

The method of the invention specifically comprises altering the fatty acid content of the bacteria. Preferably, the ****unsaturated**** ****fatty**** ****acid**** content of the bacteria is altered in accordance with the invention. Preferably, one or more of the fatty acids is increased in the bacteria, and most preferably the fatty acid content is in the ****bacterial**** ****membrane****. Preferred methods of altering the fatty acid content include genetic alteration of the bacteria (e.g., by enhancing expression of one or more genes involved in production (synthesis or catabolism) of one or more fatty acids). Bacteria used according to the invention include both gram positive and gram negative bacteria, although gram negative bacteria such as *Escherichia coli* are preferred. Particularly preferred bacteria include *Escherichia coli*.

SUMMARY

BSUM(11)

The invention also relates to bacteria having ****enhanced**** viability and/or ****enhanced**** ****transformation**** efficiency after periods of storage at low temperatures (e.g., greater than -80 degree C, preferably about -20 degree C to about 4 degree C). Such storage stable cells comprise an altered fatty acid content. Preferably, the storage stable bacterial cells or competent cells have an increased level or amount of one or more fatty acids, preferably unsaturated fatty acids. Such increased amount of fatty acid content may be caused by genetic alterations, preferably by enhancing expression of one or more genes involved in changing the fatty acid content of the bacteria.

SUMMARY

BSUM(13)

The invention further provides a DNA molecule comprising a sequence capable of ****enhancing**** the viability or the ****transformation**** efficiency of a bacterium at low temperatures (e.g., greater than -80 degree C, preferably about -20 degree C to about 4 degree C). Such DNA molecule preferably comprises one or more genes involved in the production of one or more fatty acids in the bacteria. Most preferably, the nucleic acid molecule of the invention allows enhanced production of fatty acids in the bacteria.

DETD(DESC)

DETD(10)

The present invention relates to a method for ****enhancing**** viability or ****transformation**** efficiency of a bacterium by altering the fatty acid content (preferably the unsaturated fatty acid content). The invention also relates to a method for obtaining a bacterium having such an altered fatty acid content. The method involves modifying or mutating a bacterium such that the fatty acid content of said bacterium is altered relative to an unmodified or unmutated bacterium. The modified or mutated bacterium having ****enhanced**** viability or ****enhanced**** ****transformation**** efficiency may then be isolated. Selection of such a modified bacterium may be selected by assaying for such enhanced characteristics relative to the unmodified bacterium (see Examples). Preferably, the amount of fatty acid is increased in the bacterium. This increase may be accomplished by various techniques, for example, by adding one or more fatty acids to the bacterium or by genetically modifying the bacterium. Any type of genetic modification may be used in accordance with the invention, including natural selection, artificial mutation and genetic engineering. Such techniques are well known in the art. Common genetic engineering techniques include cloning one or more fatty acid genes in a vector to increase copy number, or enhancing translation or transcription of such genes by, for example, overexpression (e.g., using an expression vector).

DETD(DESC)

DETD(11)

The method of the invention provides for the production of cells which have ****enhanced**** viability and/or ****enhanced**** ****transformation**** efficiency upon storage at low temperatures (e.g., greater than -80 degree C, preferably about -20 degree C to about 4 degree C). Such storage stable strains may be stored for extended periods at various temperatures. According to the invention, alteration of the content of one or more fatty acids results in ****enhanced**** viability or ****enhanced**** ****transformation**** efficiency. Alteration of the fatty acid content can be accomplished in any bacteria to provide bacteria having these beneficial characteristics. Preferably, such bacteria are modified genetically.

DETD(DESC)

DETD(15)

The bacteria of the invention having altered fatty acid content may be made competent for transformation using well known techniques. Such competent bacterial cells have, according to the invention, ****enhanced**** ****transformation**** efficiency upon or after storage at low temperatures (e.g., greater than -80 degree C, preferably about -20 degree C to about 4 degree C). Transformation, in the context of the current

invention, is the process by which exogenous DNA is inserted into a bacterium, causing the bacterium to change its genotype and/or phenotype. Such a change in genotype or phenotype may be transient or otherwise. Exogenous DNA is any DNA, whether naturally occurring or otherwise, from any source that is capable of being inserted into any organism. Preferably, exogenous DNA is any DNA, whether naturally occurring or otherwise, from any source that is capable of being inserted into bacteria. Such exogenous DNA includes, without limitation, plasmid DNA, cosmid DNA, eukaryotic (particularly mammalian, and most particularly human) DNA, DNA libraries, cDNA libraries, expression vectors and phage DNA (such as bacteriophage lambda DNA).

DETDESC

DETD(19)

The present invention also concerns genetic material capable of "enhancing" the viability and/or "transformation" efficiency of said bacterium at low temperatures. In particular, the invention concerns isolated nucleic acid molecules which allow alteration of fatty acid content when introduced into a bacterium. Preferably, the nucleic acid molecule comprises one or more genes involved in changing fatty acid content of said bacterium. Such genetic material is preferably contained in a cloning or expression vector. In one aspect of the invention, the nucleic acid molecule comprises one or more genes which enhance the level of one or more fatty acids. Preferably, the genes enhance unsaturated fatty acid levels. Such unsaturated fatty acids include, but are not limited to, oleic acid, linoleic acid, linolenic acid, cis vaccenic acid, and palmitoleic acid. Such genes include but are not limited to fabB, fabF, fabD, fabG, fabA, fabH, fabI, fabZ, fadA, fadB, fadE, fadL, fadR, farR, fatA, etc.

DETDESC

DETD(73)

"Increases" in "Transformation" Efficiency Due to Presence of Clone 1

DETDESC

DETD(74)

FIG. 7 shows that DH10B strain containing cosmid clone 1 stored at -20 degree C. for three months exhibits an "enhanced" "transformation" efficiency (greater than 100 fold) compared with DH10B containing the vector pCP13 similarly stored. After 3 months at -20 degree C. DH10B containing the vector pCP13 cells exhibited a transformation efficiency of less than 1.0 times 10 sup 5 Transformants/ mu g. In contrast, DH10B cells containing cosmid clone 1 exhibited a transformation efficiency of >1.0 times 10 sup 6 Transformants / mu g.

DETDESC

DETD(76)

Isolation of DNA Fragments of Clone 1 Responsible for "Increased" Viability and "Transformation" Efficiency

CLAIMS

CLMS(1)

What is claimed is

1. A method for obtaining enhanced viability of a bacterial culture subjected to storage at a temperature of from about +4 degree C. to about -80 degree C. which comprises:
(a) modifying bacteria of said culture by introducing into said bacteria one or more genes that encode one or more gene products that increases the percentage of "unsaturated" "fatty" "acids" in the "membrane" of said "bacterium" relative to total fatty acids therein, wherein said modified bacteria express said one or more encoded gene products; and
(b) subjecting said bacterial culture to said storage, wherein said one or more gene products causes said bacteria to exhibit enhanced viability relative to that exhibited by said bacteria prior to said modification (a).

CLAIMS

CLMS(2)

2. A method for "enhancing" the "transformation" ability of a bacterial culture which comprises:
(a) modifying bacteria of said culture by introducing into said bacteria one or more genes that encode one or more gene products that increases the percentage of "unsaturated" "fatty" "acids" in the "membrane" of said "bacterium" relative to total fatty acids therein, wherein said modified bacteria express said one or more encoded gene products; and
(b) subjecting said bacterial culture to transformation, wherein said one or more gene products causes said bacteria to exhibit "enhanced"

"transformation" ability relative to that exhibited by said bacteria prior to said modification (a).

CLAIMS

CLMS(9)

9. The method of claims 1 or 2, wherein said one or more gene products increases the percentage of an "unsaturated" "fatty" "acid" selected from the group consisting of oleic acid, linoleic acid, palmitoleic acid, and cis-vaccenic acid in the "membrane" of said "bacterium" relative to total fatty acids therein.

CLAIMS

CLMS(11)

11. The method of claims 1 or 2, wherein said one or more gene products increases the total content of "unsaturated" "fatty" "acid" in the "membrane" of said modified "bacterium".

=> d his

(FILE 'USPAT' ENTERED AT 13 40 44 ON 17 SEP 1999)

L1 84913 S FATTY (3N) ACID?
L2 113860 S UNSATURATED
L3 11398 S L1 (5N) L2
L4 111229 S MEMBRANE?
L5 88604 S BACTERI?
L6 1923 S L4 (5N) L5
L7 3021 S L4 (10N) L5
L8 7 S L7 (P) L3
L9 1521498 S INCREASES? OR ENHANC?
L10 60696 S TRANSFORMATION
L11 2630 S L9 (10N) L10
L12 2 S L11 AND L8

=> s l8 not l12

L13 5 L8 NOT L12

=> d l13 1-5 bib rel

US PAT NO: 5,866,789 [IMAGE AVAILABLE] L13 1 of 5
DATE ISSUED Feb 2, 1999
TITLE Fatty acid alteration by a 9 desaturase in transgenic plant tissue
INVENTOR David F. Hildebrand, Fayette County, KY
W. Scott Grayburn, Fayette County, KY
ASSIGNEE Pioneer Hi-Bred International, Inc., Des Moines, IA (U S corp.)
APPL-NO 08/588,540
DATE FILED Jan 18, 1996
ART-UNIT 169
PRIM-EXMR Elizabeth F. McElwain
LEGAL-REP Foley & Lardner

US PAT NO: 5,866,789 [IMAGE AVAILABLE] L13 1 of 5
REL-US-DATA Continuation of Ser. No. 376,534, Jan. 20, 1995 abandoned, which is a continuation of Ser. No. 247,622, May 23, 1994, abandoned, which is a continuation of Ser. No. 816,288, Dec. 31, 1991, abandoned.

US PAT NO: 5,624,958 [IMAGE AVAILABLE] L13 2 of 5
DATE ISSUED Apr 29, 1997
TITLE Disinfecting contact lenses
INVENTOR Charles E. Isaacs, 30 Devon Dr. North, Manalapan, NJ 07726
Kwang S. Kim, 178 Dahlia St., Staten Island, NY 10312
Halldor Thormar, Langagerdi 15, Reykjavik, Iceland
William C. Heird, 2001 Holcombe Blvd Apt 2701 Houston, TX 77030
Henryk M. Wisniewski, 141 Nixon Ave., Staten Island, NY 10304
APPL-NO 08/408,079
DATE FILED Mar 22, 1995
ART-UNIT 125
PRIM-EXMR Zohreh Fay
LEGAL-REP Kane, Dalsimer, Sullivan, Kurucz, Levy, Eisele and Richard

US PAT NO: 5,624,958 [IMAGE AVAILABLE] L13 2 of 5
REL-US-DATA Continuation-in-part of Ser. No. 58,056, May 3, 1993, Pat. No. 5,434,182, which is a continuation of Ser. No. 896,120, Jun. 10, 1992, abandoned, which is a continuation-in-part of Ser. No. 543,111, Jun. 25, 1990, abandoned, which is a continuation-in-part of Ser. No. 365,291, Jun. 12, 1989, abandoned, which is a continuation-in-part of Ser. No. 140,078, Dec. 31, 1987, Pat. No. 4,997,851.

US PAT NO 5,466,714 [IMAGE AVAILABLE] L13 3 of 5
DATE ISSUED Nov 14, 1995
TITLE Spermicidal and cytotoxic fatty acid compositions
INVENTOR Charles E Isaacs, Manalapan, NJ
Kwang S Kim, Staten Island, NY
Henryk M Wisniewski, Staten Island, NY
ASSIGNEE Research Foundation For Mental Health Hygiene, Inc.,
Albany, NY (U.S. corp.)
APPL-NO 08/070,086
DATE FILED May 28, 1993
ART-UNIT 124
PRIM-EXMR Arthur C. Prescott
LEGAL-REP Kane, Daisimer, Sullivan, Kurucz, Levy, Eisele and Richard

US PAT NO 5,466,714 [IMAGE AVAILABLE] L13 3 of 5
REL-US-DATA Continuation-in-part of Ser. No. 896,121, Jun. 10, 1992,
abandoned, which is a continuation-in-part of Ser. No.
543,111, Jun. 25, 1990, abandoned, which is a
continuation-in-part of Ser. No. 365,291, Jun. 12, 1989,
abandoned, which is a continuation-in-part of Ser. No.
140,078, Dec. 31, 1987, Pat. No. 4,997,851

US PAT NO 5,434,182 [IMAGE AVAILABLE] L13 4 of 5
DATE ISSUED Jul 18, 1995
TITLE Antibacterial fatty acid compositions
INVENTOR Charles E Isaacs, 30 Devon Dr. North, Manalapan, NJ 07726
Kwang S Kim, 178 Dahlia St., Staten Island, NY 10312
Halldor Thormar, Langagerdi 15, Reykjavik, Iceland
William C. Heird, 2001 Holcombe Blvd., Apt. 2701, Houston,
TX 77030
Henryk M. Wisniewski, 141 Nixon Ave., Staten Island, NY
10304
APPL-NO 08/058,056
DATE FILED May 3, 1993
ART-UNIT 125
PRIM-EXMR Zohreh Fay
LEGAL-REP Kane, Daisimer, Sullivan, Kurucz, Levy, Eisele and Richard

US PAT NO 5,434,182 [IMAGE AVAILABLE] L13 4 of 5
REL-US-DATA Continuation of Ser. No. 896,120, Jun. 10, 1992,
abandoned, which is a continuation-in-part of Ser. No.
543,111, Jun. 25, 1990, which is a continuation-in-part
of Ser. No. 365,291, Jun. 12, 1989, which is a
continuation-in-part of Ser. No. 140,078, Dec. 31, 1987,
Pat. No. 4,997,851

US PAT NO 4,997,851 [IMAGE AVAILABLE] L13 5 of 5
DATE ISSUED Mar 5, 1991
TITLE Antiviral and antibacterial activity of fatty acids and
monoglycerides
INVENTOR Charles E Isaacs, Manalapan, NJ
Halldor Thormar, Reykjavik, Iceland
Kwang S Kim, Staten Island, NY
William C. Heird, New York, NY
APPL-NO 07/140,078
DATE FILED Dec 31, 1987
ART-UNIT 125
PRIM-EXMR Douglas W. Robinson
ASST-EXMR Zohreh A. Fay
LEGAL-REP Kane, Daisimer, Sullivan, Kurucz, Levy, Eisele and Richard

US PAT NO 4,997,851 [IMAGE AVAILABLE] L13 5 of 5

=> d his

(FILE USPAT ENTERED AT 13:40:44 ON 17 SEP 1999)

L1 84913 S FATTY (3N) ACID?
L2 113860 S UNSATURATED
L3 11398 S L1 (5N) L2
L4 111229 S MEMBRANE?
L5 88604 S BACTERI?
L6 1923 S L4 (5N) L5
L7 3021 S L4 (10N) L5
L8 7 S L7 (P) L3
L9 1521498 S INCREASE? OR ENHANC?
L*0 60696 S TRANSFORMATION
L*1 2830 S L9 (10N) L10
L*2 2 S L11 AND L8
L*3 5 S L8 NOT L12

=> log y

U.S. Patent & Trademark Office LOGOFF AT 13:49:23 ON 17 SEP 1999